INDIA WEATHER REVIEW, 1956

ANNUAL SUMMARY

PART C

S T O R M S A N D D E P R E S S I O N S

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INDIA WEATHER REVIEW, 1956

ANNUAL SUMMARY

PART-C

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STORMS & DEPRESSIONS

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I. DEPRESSIONS AND CYCLONIC STORMS

During the year, 4 cyclonic storms and 8 depressions formed in the Bay of Bengal, 2 depressions in the Arabian Sea and 1 over the land. The dates of activity of the storms and the greatest barometric depth observed (or estimated) near their centres are summarised in the following table.

TABLE I

Locality	Month	Date	Greatest observed or estimated barometric depth
Bay of Bengal	April-May	27th April - 2nd May	17 mbs (estimated)
Bay of Bengal	May-June	29th May - 6th June	30 mbs
Bay of Bengal	June	24th - 26th	10 mbs (estimated)
Bay of Bengal	October	26th - 31st	20 mbs (estimated)

The detailed description of the cyclonic storms and depressions is followed by a brief account of the western disturbances during the year. A list of the more important local storms along with a summary of the damage caused by them is added at the end, together with a list of the localities in which winds of force 9 or more were experienced by ships in the Indian Seas.

1. Deep depression in the Bay of Bengal - 9th to 13th February, 1956.

A low pressure wave from the east moved into the Andaman Sea and adjoining southeast Bay of Bengal on the 7th and a shallow low pressure area formed over the south Bay the next day. The following observations of 8th are relevant in this connection :

Name of the ship	Position Lat. °N	Long. °E	Hour of Obsn. I.S.T.	Wind Direction	Speed	Weather remarks
S.S. Itowara	5.8	86.5	1130	N	20	
S.S. Ostker	3.6	86.0	1130	NNW	10	
S.S.Clan McDonald	3.2	93.6	1130	SW	15	Squalls during the past hour
S.S. Ampenan	5.8	92.8	1130	SSW	15	Showers

Nan Cowrie recorded 4" of rain and Kondul and Car Nicobar 2" each on 9th morning and all the stations in the south Bay Islands were raining. The pressure departure was of the order of -4 mb. These, along with the following observations of S.S. Clan McDonald, indicated that a depression had formed in the south Bay with centre near Lat.7.5°N and Long. 91.0°E at 0830 hrs IST of 9th.

Name of the ship	Position Lat. °N	Long. °E	Hour of Obsn. I.S.T.	Wind Direction	Speed	Weather remarks
S.S.Clan McDonald	6.8	90.8	0530	WNW	25	Slight rain, continuous
S.S.Clan McDonald	7.8	90.0	1130	NNW	30	Squalls during the past hour. Very rough Seas.

It intensified into a deep depression by 1130 hrs IST of the same day and moving northnorthwestwards was centred near Lat. 8.5°N and Long. 90.5°E at 1730 hrs IST of that day. The pressure departure was of the order of -6mb in the south Bay Islands. The following observations were relevant in this connection.

Name of the ship or Station	Position Lat. °N	Long. °E	Hour of Obsn. I.S.T.	Wind Direction	Speed	Weather Remarks
S.S. Bellorphone	5.9	94.7	1730	S	20	Precipitation within sight
S.S. Chontan	5.4	93.9	1730	S	10	Rain during last hour
S.S.Clan McDonald	9.2	88.8	1730	NNW	25	Very rough seas
Car Nicobar			1730	ESE	5	Slight rain continuous
Port Blair			1730	NE	10	Rain in last hour
Nan Cowrie			1730	SE	Less than 3	Drizzling

The rainfall extended by the next morning to the north Bay Islands. Port Blair and Car Nicobar reported 3" of rain each and Kondul 2" on 10th. Port Blair reported easterly wind of speed 20 knots at surface and 30 knots at 1000' a.s.l. Pressure departure over the Bay Islands was of the order of -6 mb. The deep depression was centred at 0830 hrs IST near Lat. 10°N and Long. 90.5°E. As the day advanced, rainfall decreased over the south Bay Islands. The pressure departure was about -8 mb near the north Bay Islands and only about -4 mb near the south Bay Islands. The surface wind over Port Blair backed from easterly 20 knots on 10th morning to westerly 5 knots on 11th morning and the upper winds at 1,000 to 2,000 ft a.s.l. also changed from easterly 30 knots on 10th morning to northeasterly 30 to 35 knots on 10th evening and then to west to westnorthwesterly 20 knots on 11th morning. By 11th morning, the pressure departure was only -4 to -5 mb over the north Bay Islands and Tennaserim coast. These showed clearly that the deep depression recurved northeastwards on 10th and weakened. It was centred near Lat. 11.0°N and Long. 91.0°E on the same evening, and weakened into a depression on 11th with centre at 0830 hrs IST near Lat. 13.5°N and Long. 94.0°E. Continuing to move northeastwards, the depression gradually weakened and moved into lower Burma as a low pressure wave on 13th.

2. Deep Western depression : 13th to 17th March 1956.

A western disturbance lay as a trough of low pressure in the north Arabian Sea off the Mekran coast on 13th. The trough extended by the next morning from Sind and adjoining areas of south Baluchistan, to west Rajasthan. Moving northeastwards and intensifying rapidly, the western disturbance lay as a deep depression over the south Punjab(P) on 15th morning with centre near Bhawalpur and over north Punjab(P) on 15th evening with centre between Lyallpur and Khushab. The pressure departure near the centre was about -13 mb on this day. The deep depression continued its northeasterly course, but weakened into a depression on 16th morning when it lay over the north Punjab(I) and adjoining areas of Jammu

and Kashmir. It moved away eastwards across Kashmir the same night, after inducing a low over southwest Uttar Pradesh. The induced low moved away eastwards across Assam by 18th. The deep depression caused widespread thundershowers in Jammu and Kashmir, the Punjab(I) and northwest Uttar Pradesh on 15th and 16th. Hailstorms were reported from Rajasthan, Uttar Pradesh and the Punjab(I) on 15th and caused considerable damage to crops. The strong winds associated with the depression also caused considerable damage to life and property. An aircraft was reported to have crashed in a duststorm near Bikaner.

3. Cyclonic storm - 27th April to 2nd May 1956.

The upper winds (upto 7,000' a.s.l.) over Port Blair veered from westerly on 22nd morning to northeasterly on 22nd evening and to southeasterly on 23rd morning, indicating the movement of an easterly wave across the Bay Islands. Rainfall had been widespread in the south Bay Islands, Nan Cowrie reporting 2" of rain on 23rd morning. A trough of low developed in the southeast Bay of Bengal on 24th morning. The following observations of 24th are relevant.

Name of the ship or station	Position Lat. °N	Long. °E	Hour of Obsn. I.S.T.	Wind Direction	Speed	Weather Remarks
S.S. Jhamastus	5.7	90.7	0530	W	10	Shower during preceding hour
Kondul			0830	SE	5	--
S.S. Garet	10.6	91.3	1130	SE	5	Distant rain

The trough became more marked on 25th, when the following observations were recorded.

Name of the ship or station	Position Lat. °N	Long. °E	Hour of Obsn. I.S.T.	Wind Direction	Speed	Weather Remarks
S.S. Tabian	5.9	88.2	0530	W	10	Showers
Nan Cowrie			0830	S	5	
Car Nicobar			0830	NE	Less than 3	Distant rain
Port Blair			0830	SE	-do-	...
S.S. Tjanmasti	5.6	84.3	1130	WSW	20	Overcast
S.S. Tabian	5.9	87.2	1130	W	20	Overcast

The movement of another easterly wave across the Bay Islands on 26th was clearly shown by the veering of the upper winds over Port Blair upto at least 12,000' a.s.l. from northeasterly on 25th to easterly on 26th and southeasterly on 27th. Widespread rainfall was reported from the south Bay Islands on 26th, Kondul recording 2" of rain. Rainfall increased on the next day, when Car Nicobar recorded 2" and Kondul and Nan Cowrie 3" each. This fresh easterly wave accentuated the trough over the southeast Bay and a depression formed on 27th morning with centre near Lat. 8.5°N and Long. 90.5°E. The following observations of 27th are significant.

Name of the ship or station	Position Lat. °N	Long. °E	Hour of Obsn. I.S.T.	Wind Direction	Speed Knots	Weather Remarks
S.S.Empire Orwell	5.7	89.3	1130	W	15	Overcast
S.S.Easmns	6.0	90.2	0530	WSW	15	Slight rain intermittent
Nan Cowrie			0830	S	10	
Car Nicobar			0830	ESE	5	Slight drizzle continuous
Port Blair			0830	E	10	Slight rain continuous

Upper winds at 1,000 to 2,000' a.s.l. over Car Nicobar were southwesterly to southsouthwesterly 30 to 35 knots on 27th evening. The depression was now probably deep and was centred near Lat. 9.5°N and Long. 89.5°E. It was near Lat. 11.0°N and Long. 89.0°E, the next morning. Moving northwestwards and intensifying at the same time, it became a cyclonic storm on the night of 28th and was centred near Lat. 14°N and Long. 83.0°E the next morning. The pressure departure along the north Coromandal coast was ~~-8~~ to -10 mb at this time. Moving northnorthwestwards, the cyclonic storm was centred near Lat. 15.0°N and Long. 81.0°E the same evening, when Madras reported upper winds of about 40 knots upto 7,000' a.s.l. the highest level upto which winds awere available. The cyclonic storm crossed coast between Nellore and Ongole the same night. It weakened into a depression on crossing the coast and moving rapidly westwards it was centered about 50 miles south of Gadag at 0830 hrs IST of 30th. It emerged into the Arabian Sea the same night between Karwar and Vengurla and was centered near Lat. 15.5°N and Long. 72.5°E on the morning of 1st May. The following observations of that day were relevant in this connection.

Name of the ship or station	Position Lat. °N	Long. °E	Hour of Obsn. I.S.T.	Wind Direction	Speed Knots	Weather remarks
S.S.Blair Clova	15.2	72.5	1130	WNW	15	Moderate rain continuous

Name of the ship or station	Position Lat. °N	Position Long. °E	Hour of Obsn. I.S.T.	Wind Direction	Wind Speed Knots	Weather remarks
Honavar			0830	SW	10	Moderate rain continuous
Vengurla			0830	S	10	Overcast
Devgad			0830	SE	10	
Ratnagiri			0830	E	5	

The course of the depression gradually veered to northnorth-west. The depression weakened and was centred near Lat. 18.0°N and Long. 71.0°E on 2nd morning. Weakening further, it degenerated into a trough of low pressure on the same evening and became unimportant the next day.

Very few ships' observations were available from the storm field and most of the conclusions had to be drawn from indirect evidence.

In association with the storm, there was a spell of widespread rain with locally heavy to very heavy falls in the south Peninsula. The heavy rains associated with the storm were reported to have dislocated railway traffic between Cuddapah and Renigunta. Newspapers also reported wreckage of small country craft, uprooting of trees and considerable damage to property near Mangalore. The following statement gives the district averages and noteworthy amounts of rainfall associated with the storm.

State and District	District average on 29.4	30.4	1.5	2.5	3.5	Particularly heavy falls
Madras						
Chingleput	1.0	..	..	..	..	
Madras	1.7	..	..	..	..	
Travancore-Cochin						
Kottayam	1.3	1.1	1.0	..	..	On 29th Apr. - Kottayam 6.5", Aurkutty 5.1", Cochin 7.0", Cochin Port 6.4". On 30th Apr. - Ernakulam 5.7". On 1st May - Baindur 5.6".
Quilon	1.5	..	..	..	1.5	
Cochin	2.3	2.6	1.3	..	..	
Malabar	..	1.9	1.2	..	..	
South Kanara	..	2.2	2.0	..	..	
Coorg State	..	1.9	..	..	..	
Mysore						
Tumkur	..	1.0	..	..	..	
Shimoga	..	1.7	..	..	..	On 1st May - Agumbe 8.0"

State and District	District average on 29.4	30.4	1.5	2.5	3.5	Particularly heavy falls
Mysore contd.						
Chikmaglur	..	1.0	..	..	..	
Chitaldurg	..	2.2	..	..	..	On 30th Apr. - Challakere 5.2", Ramgir 5.2", Biliebodu 5.5"
Bellary	..	1.7	..	..	..	
Andhra State						
Guntur	..	1.0	..	..	..	
Nellore	..	1.1	..	..	..	
Anantapur	..	2.3	..	..	..	On 30th Apr. - Bukkapatnam 5.8"
Cuddapah	..	2.7	..	..	..	On 29th Apr. - Vemapalli 5.5" On 30th Apr. - Kodur 7.2"
Chittoor	..	1.1	..	..	..	On 30th Apr. - Tirupatti 8.7"
Bombay						
Kanara	..	1.5	1.2	..	..	

4. Severe cyclonic storm in the Bay of Bengal - 29th May to 5th June 1956.

In association with the movement of a low pressure wave from north Burma, an upper air cyclonic circulation extending upto 3.0 km a.s.l, developed over the north Bay of Bengal on 28th May. Pronounced thunderstorm activity prevailed over north Orissa, Chota Nagpur and adjoining Gangetic West Bengal on that day. By the next morning, a depression formed over the head Bay with centre at 0830 hrs IST near Lat. 21.5°N and Long. 89.5°E. The following observations of 29th were relevant in this connection.

Name of the ship or station	Position Lat. °N	Long. °E	Hour of Obsn. I.S.T.	Wind Direction	Wind Speed Knots	Weather Remarks
Sandheads			0530	WNW	11	Continuous rain, Moderate
Sandheads			0830	WNW	12	Continuous rain, heavy
S.S. Essamaru	21.0	90.1	0530	WSW	15	Overcast
Barisal			0530	ESE	2	Intermittent rain, Moderate

Name of the ship or station	Position Lat. °N	Long. °E	Hour of Obsn. I.S.T.	Wind Direction	Speed Knots	Weather Remarks
Barisal			0830	E	2	Continuous drizzle, moderate.
Chittagong			0530	SE	5	Intermittent rain, slight
Chittagong			0830	SE	2	Continuous rain, slight.
Calcutta			0530	NNE	5	Overcast
Calcutta			0830	NE	5	Slight drizzle, intermittent.
Saugor Island			0830	WNW	5	Slight drizzle, continuous.

Moving very slowly in a westerly direction, the depression deepened and was centred at 2330 hrs IST of 29th near Lat. 21.5°N and Long. 89.0°E. The deep depression remained practically stationary and intensified into a cyclonic storm by 0530 hrs IST of 30th and was centred near Lat. 21.5°N and Long. 88.5°E at 0830 hrs IST of that day. A few relevant observations of 30th morning are given below :

Name of the ship or station	Position Lat. °N	Long. °E	Hour of Obsn. I.S.T.	Wind Direction	Speed Knots	Weather Remarks
Sandheads			0530	WNW	30	Moderate rain, intermittent.
Sandheads			0830	NW	35	Continuous rain, slight.
Saugor Island			0530	NW	30	Slight drizzle and rain
Saugor Island			0830	N	32	- do -
Calcutta			0530	NE	20	Slight drizzle, continuous.
Calcutta			0830	NNE	15	Slight rain and drizzle.
Barisal			0530	S	5	Slight rain, intermittent.
S.S. Nadir	20.9	88.0	0530	WNW	30	Moderate rain, continuous.
S.S. Nadir	20.8	87.9	0930	NW	35	Heavy rain, continuous.

As the day advanced, the cyclonic storm intensified further without any appreciable movement. It became severe by 1330 hrs IST and remained stationary till the evening. Thereafter, it moved very slowly northwestwards. A few significant observations recorded on the afternoon of 30th are given below :

Name of the station	Hour of Obsn. (I.S.T.	Wind Direction	Wind Speed Knots	Weather Remarks
Sandheads	1330	NW	40	Continuous rain
Sandheads	1730	NW	45	Heavy rain, continuous
Calcutta (Dum Dum)	1330	NNE	20	
Calcutta (Alipore)	1730	ENE	15	Overcast; gusty
Saugor Island	1330	N	36	Heavy rain and drizzle
Midnapore	1330	NE	37	

Sandheads reported westerly wind of 60 knots and Saugor Island northnortheasterly wind 60 knots at 0530 hrs IST of 31st. By that time, the severe cyclonic storm had a core of hurricane winds and a calm centre. The eye of the storm was about 20 miles in diameter. It is seen from the autographic charts of Saugor Island that the wind speed decreased and remained less than 15 knots between 11 A.M. and 1 p.m. being only about 2 knots for 15 minutes, just preceding the noon. In the afternoon, strong winds with southerly component began to blow. Saugor Island recorded the lowest pressure of 971 mb on the forenoon, about 30 mb below normal. Kakdwip, about 16 miles to the northeast of Saugor Island also reported about 2 hours' lull from 11 A.M. of the day. The severe cyclonic storm crossed the Sunderbans coast, at about 2130 hrs IST of 31st near Saugor Island but to its northwest. The following extracts from the weather diary of Saugor Island and the report from the Circle Officer, Kakdwip are interesting.

Extracts from the weather diary of Saugor Island

30.5.56 - " Rain continued for whole day and night .... Visibility very Poor .... Wind force varied from 7 to 11.Terrific violent storm is in existence. Sea high."

31.5.56 - "Sky overcast with fractonumbus clouds since previous day. Heavy showers of rain continued in the morning with wind force 9-10 approximate. Wind and rain began to increase. Became calm by 1000 hrs. There was lull in storm for about 2 hours .... Immediately after lull violent wind blowing WSW since 1430 hrs with heavy showers. Station was swept severely by terrific storm. The same conditions continued up till midnight .... The building was shaken. Anemometer blown up in the morning."

Report obtained from the Circle Officer, Kakdwip

30.5.56 - " Gusty wind with occasional gales from north/northeast of estimated maximum speed of 40/50 m.p.h. was experienced. From about midnight wind speed was gradually increasing, the estimated maximum speed being about 60/70 m.p.h."

31.5.56 - " The fury of the storm was experienced in the morning between 0700 hrs IST to 1000 hrs IST when the average maximum wind speed was estimated to be more than 80 m.p.h. The wind direction became northwesterly towards midnight gradually veering to northeast in the morning. By about 1000 hrs IST the wind speed gradually dropped and remained light during the period 1100 hrs to 1300 hrs IST. Rain stopped and there was also break in clouds during the above period.

After 1300 hrs IST wind speed started to increase again but wind direction changed gradually to southeast/south. The wind speed gradually increased, being about 60/70 m.p.h. by estimation."

1.6.56 to 2.6.56 - " Gusty wind of estimated maximum speed of about 25 m.p.h. continued till about morning of 2.6.56."

The severe cyclonic storm weakened after crossing coast and lay as a cyclonic storm of moderate intensity with centre about 20 miles west of Tamluk (50 miles westsouthwest of Calcutta) at 0830 hrs IST of 1st June. Thereafter, the storm recurved towards northeast and was centred at 0830 hrs IST of 2nd about 30 miles northnorthwest of Calcutta. The report of the Sub-divisional officer, Tamluk and the weather diary of Calcutta (Alipore) are given below :

Report obtained from Sub-divisional Officer, Tamluk

30.5.56 - "Surface wind from northeast was gusty, the maximum wind speed in gusts was estimated to be 25 m.p.h.."

31.5.56 - "The wind speed was gradually increasing from about 1100 hrs IST, when frequent gales of speed of about 40 m.p.h. were estimated. The fury of the storm was experienced there between 2100 hrs IST of 31.5.56 and early morning of 1.6.56 when frequent gales of speed of about 60 m.p.h. were experienced. The direction of the wind was mainly northeast gradually becoming southerly by the morning of 1.6.56. Tamluk did not experience any lull in wind or cessation of rain during the above period."

Calcutta (Alipore)

31.5.56 - " Sky overcast with low clouds of monsoonish bad weather all day and night. Winds of high gusts and occasional lulls. Rain and drizzle continuous throughout the day and night. Maximum gusts reached 58 m.p.h. recorded 1030 hrs wind mainly NE during the day and became SE at night. Visibility poor throughout the day. "

1.6.56 - " Following severe cyclone storm previous day overcast sky

mainly with Fractonimbus and almost an incessant rainfall occasionally heavy at evening and night. Slight improvement at 1000 hrs cloud height lowered to 500'/300' at times during heavy downpour. Gusty wind and poor visibility prevailed all throughout. A notable change in wind direction from east in previous night SE-ESE during day time – SSW during late hours at night was observed. "

2.6.56 – " No appreciable change in weather conditions incessant rainfall with overcast sky was noticed till evening and early night of the date. Threatening cloud conditions in FS lowered to 300'/200' at times in a typical monsoonish weather and gusty SW wind was the main feature of the day. Condition improved slightly at 1900 hrs when wind force reduced to moderate (speed 10-12 m.p.h. average) with its direction changing from SW-WSW. Intensity of rainfall improved to slight continuous soon after 1800 hours." .' .

Continuing to move in a northeasterly direction the storm weakened into a deep depression by the afternoon of 2nd. It lay over East Pakistan on 3rd with centre at 0830 hrs IST about 80 miles north-west of Dacca. It weakened further and lay as a low over the eastern parts of East Pakistan on 4th. It became unimportant by 6th.

The storm served to establish the monsoon over Assam, West Bengal and Orissa on 29th May about 10 days ahead of the normal date in West Bengal and Orissa.

In association with the storm, fairly widespread rain with some heavy to very heavy falls occurred in Gangetic West Bengal during the period, 29th May to 2nd June. More than a million people were affected by the storm in Gangetic West Bengal. The southern parts of 24 Parganas and the Midnapore districts were the worst affected. More than 20,000 houses collapsed. Over 30,000 acres of paddy fields in coastal areas of West Bengal were reported to have been inundated by saline water due to breaches in the embankments and the standing crops were completely destroyed. Assam had nearly general rain for five successive days between 2nd and 6th June, some of the rainfalls being exceptionally heavy. The heavy rains in Assam and adjoining areas were reported to have caused severe floods in the states of Assam, Manipur and Tripura.

The following table gives the district averages and noteworthy amounts of rainfall associated with the storm. Data of State raingauge stations in Orissa are not available.

State and District	District averages on 29.5	30.5	31.5	1.6	2.6	3.6	4.6	5.6	6.6	Particularly heavy falls.
West Bengal										
24 Paraganas	--	..	1.4	1.7	2.8	2.0	..	..	..	On 2nd June - Calcutta (Alipore) 5.1"; On 3rd - Calcutta (Alipore) 5.9"; Dum Dum 5.1".

State and District	District averages on									Particularly heavy falls
	29.5	30.5	31.5	1.6	2.6	3.6	4.6	5.6	6.6	
Nadia	..	..	..	2.2	2.6	2.5	..	..	..	On 2nd June - Haringhata 5.2"; On 3rd - Haringhata 7.0".
Murshidabad	..	..	..	..	..	..	..	..	..	On 5th June - Patkabari 6.0".
Midnapore	1.1	..	1.9	2.5	2.1	1.1	..	..	..	On 29th May - Midnapore 5.7" On 31st May - Kukrahati 5.1", Henria 6.1 ", Kharagpur 7.3" Nadigram 6.9", Bhagwanpur 6.4", Pachet 5.4", Kesiary 5.5". On 1st June - Contai 8.2", Kukrahati 6.4", Panskura 5.8", Ramnagar 6.2", Kolaghat (Dianan) 5.4". On 2nd - Chandrakona 5.0", Jargram 5.9". On 3rd - Etanmogra 5.4".
Hooghly	..	..	1.1	2.4	3.0	1.0	..	..	1.0	On 1st June - Serampore 6.3". On 2nd - Serampore 6.7", Boinchee 5.5". On 6th - Serampore 5.7".
Howrah	..	..	..	..	2.2	..	..	..	..	On 2nd June - Amta 6.5".
Assam										
Kamrup	..	..	..	..	..	..	1.4	2.1	..	On 4th June - Bardur 5.9". On 5th - Amcharg 8.5", Gauhati 7.7".
Darrang	..	..	..	..	..	..	1.4	2.4	..	
Nowgong	..	..	..	..	..	..	..	1.7	1.0	
Cachar	..	..	..	..	..	1.7	3.3	1.9	..	On 4th June - Karimganj 5.1", Dullabocherra 5.3".
Garo hills	..	..	..	..	1.5	1.3	..	1.4	..	
Khasi and Jaintia hills	..	..	..	1.4	4.1	5.0	10.3	14.5	2.6	On 2nd June - Mawsynram 12.3", On 3rd - Mawsynram 5.1", Cherrapunji 10.4",Cherrapunji (Police Station) 10.4". On 4th - Cherrapunji (Police Station) 14.1", Jowai 7.4", Mawsynram 22.7", Cherrapunji 14.0". On 5th - Shillong 10.3", Upper Shillong 14.1", Cherrapunji 38.3", Cherrapunji (Police Station 37.3", Mawsynram 6.3". On 6th - Cherrapunji (Police Station 10.4", Cherrapunji 10.4".

State and District	District averages on 29.5	30.5	31.5	1.6	2.6	3.6	4.6	5.6	6.6	Particularly heavy falls
United Mikir and North Cachar hills	..	..	..	..	..	..	..	1.0	..	
Mizo	..	..	..	1.9	1.7	4.2	6.0	2.2	..	On 3rd June - Sialsuk 8.2", Demagiri 6.1", On 4th - Lungleh 6.1", Sherkawn 10.0", Demagiri 6.4".

5. Bay depression - 9th to 10th June, 1956

Fairly widespread rain with a few heavy falls occurred over Gangetic West Bengal during the 24 hours ending at 0830 hrs IST of 8th June. During this period, pressures rose over the Arakans, East Pakistan and coastal districts of Orissa, but fell over Gangetic West Bengal and Chota Nagpur. The axis of the seasonal trough extended into the north Bay of Bengal where an upper air cyclonic circulation extending upto 4.0 km a.s.l. developed on 8th. During the course of the day, pressures rose further over south Orissa coast and East Pakistan, while they fell over the northwest angle of the Bay of Bengal and adjoining coastal districts of Orissa and Gangetic West Bengal where pressure departures reached the order of -7 mb at 0830 hrs of 9th. A depression had formed at that time with centre near Lat. 21.5°N and Long. 87.5°E and pressure departure of about -10 mb near the centre. The following observations were relevant in this connection.

Name of the ship or station	Position Lat. °N	Long. °E	Hour of Obsn. I.S.T.	Wind Direction	Speed knots	Weather remarks
S.S.Soctora	20.0	87.1	0530	W	15	Slight drizzle, continuous
Sandheads			0830	SW	15	Overcast
Saugor Island			0830	SSW	20	Slight drizzle intermittent
Calcutta			0830	SSE	5	Slight drizzle continuous
Midnapore			0830	E	3	Overcast
Baripada			0830	NNW	3	Slight drizzle, intermittent

Moving in a northwesterly direction, the depression crossed coast near Contai, weakened and lay over Chota Nagpur with centre at 1730 hrs near Chaibasa. Pressure rose rapidly and the system lay as a

low pressure area over Chota Nagpur on morning of 10th with centre about 50 miles southwest of Hazaribagh. Moving slowly northnorthwestwards, it lay as a diffuse low over Bihar and adjoining Chota Nagpur on the morning of 12th and became unimportant later.

The formation and movement of this depression gave a welcome respite to Assam from heavy rains and served to divert the monsoon current towards the interior of the country across Orissa. Some parts of Bihar and Orissa reported floods due to the heavy rains.

The following table gives the district-wise averages and noteworthy amounts of rainfall associated with the depression. State raingauge data of Orissa State are not available.

State and District	District averages on 8.6	9.6	10.6	11.6	12.6	Particularly heavy falls
Uttar Pradesh						
Allahabad	..	..	..	2.9	1.7	On 10th - Karchhana 6.7".
Fatehpur	..	..	..	1.9	..	
Benares	..	..	1.5	2.3	1.5	
Gorakhpur	..	..	2.0	..	..	
Jaunpur	..	..	..	..	1.3	
Azamgarh	..	..	1.7	..	..	
Faizabad	..	..	1.2	..	..	On 10th - Tanda 5.1".
Mirzapur	..	..	2.0	1.0	..	
Ballia	..	..	..	1.0	..	
Bihar State						
Shahabad	..	..	..	..	..	On 11th - Chand 5.5".
Saharsa Sub-Dist.	1.5	..	1.2	..	..	
Ranchi	..	..	..	..	..	On 9th - Palkot 5.0".
Palamau	..	1.3	1.9	1.0	..	On 9th - Bhaunathpur 5.9" On 10th - Bhandaria 7.0".
Singhbhum	..	1.0	1.0	..	..	
Madhya Pradesh						
Durg	..	..	1.1	..	..	
Raipur	..	..	2.1	..	..	
Bilaspur	..	..	1.4	..	..	
Raigarh	..	..	3.3	1.0	..	
Surguja	..	..	1.8	..	..	On 10th - Ramanujganj 5.7".
West Bengal						
Jalpaiguri	1.4	1.2	1.6	2.5	2.5	On 12th - Alipurdur 7.7".
Vindhya Pradedh						
Rewa	..	..	..	2.7	1.6	On 11th - Mauganj 5.8".
Sidhi	..	..	..	3.4	..	On 11th - Sidhi 8.9".

6. Cyclonic storm in the Bay of Bengal - 24th to 26th June 1956

The upper winds over Port Blair backed to southeasterly / easterly on the morning of 20th June, suggesting the passage of a low pressure wave into the south Andaman Sea and the adjoining southeast Bay of Bengal. Moving slowly westnorthwestwards, the low pressure wave entered the west central Bay on the morning of 23rd. By 24th evening, pressures rose over Tamilnad and Gangetic West Bengal and over most parts of north India while they fell in west central Bay and neighbourhood, where an upper air cyclonic circulation extending upto at least 12,000 ft a.s.l. developed. A depression formed on the 24th night and was centred near Lat. 16.5°N and Long. 86.0°E at 0130hrs IST of 25th and near Lat. 17.5°N and Long. 85.0°E at 0830 hrs IST of the same day. The following observations of 25th morning are relevant.

Name of the ship or station	Position Lat. °N	Long. °E	Hour of obsn. I.S.T.	Wind Direction	Speed knots	Weather Remarks
S.S.Safinaenvarat	15.9	88.8	0530	SSW	20	Monderate continuour drizzle.
S.S. Jalrajam	19.1	86.2	0530	SE	10	Overcast
Puri			0830	ESE	30	Rain last hour
Gopalpur			0830	NE	20	Shower and squall

/Circars

There was a further fall of pressure and strengthening of the wind along the Orissa/coast. The depression intensified into a cyclonic storm and was centred at 1330 hrs IST near Lat. 18.0°N and Long. 84.5°E, when Calingapatam reported eastnortheasterly wind of 40 knots.

Moving in a northwesterly direction, the cyclonic storm was centred near Lat. 18.5°N and Long. 84.5°E at 1730 hrs IST of the same day. The following observations recorded at that time were significant.

Name of the ship or station	Position Lat. °N	Long. °E	Hour of Obsn. I.S.T.	Wind Direction	Speed Knots	Weather Remarks
S.S. Jalarajan	18.1	85.1	1730	SSW	35	
S.S. Jalausha	17.8	84.9	1730	SW	25	
Gopalpur			1730	E	20	Shower during last hour
Calingapatam			1730	ENE	20	Overcast

Continuing its northwesterly course, the storm crossed the north Circars coast near Calingapatam on the night of 25th-26th and weakened.

Moving westnorthwestwards, it lay as a depression with centre about 50 miles southsoutheast of Nagpur at 0830 hrs IST of 26th. Continuing to move in the same direction and weakening at the same time, it lay as a diffuse low over south Madhya Bharat and adjoining Rajasthan on 26th evening and merged into the seasonal low by the next day.

In association with this depression, the Bay branch of the monsoon was diverted towards the central parts of the country giving relief to Assam, Sub-Himalayan West Bengal and Bihar from the heavy rains that these parts had been experiencing for more than a week. With the formation of the depression, widespread rain commenced along the Circars and south Orissa coasts on 25th and with its passage inland the rain belt extended to the Deccan (Desh) on 26th and into Madhya Pradesh, Madhya Bharat, Gujarat and south Rajasthan on 27th, under the combined influence of this depression and another that formed over the Arabian Sea at about the same time. The following table gives the district-wise averages and noteworthy amounts of rainfall associated with the two disturbances. Rainfall figures from Orissa State are not available.

State and District	District averages on								Particular heavy falls
	23.6	24.6	25.6	26.6	27.6	28.6	29.6	30.6	
Andhra State									
Vishakhapatnam	..	..	2.0	1.5	..	..	..	..	On 25th - Vizianagaram 5.8", Konada 5.3". On 26th Srungavarapukota 5.9".
East Godavari	..	..	1.9	1.4	..	..	..	..	On 25th - Pratipadu 6.2".
West Godavari	..	..	1.5	..	..	..	..	..	
Krishna	..	..	1.1	..	..	..	1.1	2.0	On 29th - Vellurpalem (Lock) 5.2". On 30th - Gurivindapalli (Lock) 5.1".
Guntur	..	..	..	..	..	..	..	..	On 28th - Guntur 5.1".
Travancore-Cochin									
Malabar	..	..	1.5	2.1	2.1	3.1	3.7	4.7	On 26th - Lakkidi 5.8", Tagarpady 5.3". On 27th - Vyathiri 5.5", Irrity 6.8", Lakkidi 5.8", Tagarpady 5.1". On 28th - Vythiri 6.2", Irukkur 5.9", Payyanur 7.2", Taliparamba 5.1", Irrity 7.9", Lakkidi 6.1", Tagarpady 6.3". On 29th - Vythiri 7.3", Manantoddy 5.1", Tellicherry 5.4", Kuttiady 11.5", Irrity 6.4", Lakkidi 10.0", Tagappady 10.3".

State and District	District averages on 23.6	24.6	25.6	26.6	27.6	28.6	29.6	30.6	Particular heavy falls
									On 30th - Mannarghat 5.9", Manjeri 7.3", Vythiri 6.4", Manantoddy 5.9", Irikkur 6.8", Quilandy 5.5", Koshikode 9.4", Irrity 7.2", Lakkidi 8.3", Tagarpady 8.4".
South Kanara	1.7	2.1	3.5	3.6	2.7	3.5	3.0	4.5	On 26th - Coondapur 5.1", Baindur 7.1", Karkal 5.3". On 27th - Karakal 5.4". On 28th - Belthangady 6.0", Karkal 5.7", Hosdurg 5.3". On 29th - Belthangady 5.2", Bantwal 5.9". On 30th - Karkal 6.7", Puttur 8.3", Bantwal 6.9".
Hyderabad									
Adilabad	..	..	1.9	2.0	..	1.1	1.3	..	On 26th - Jowly Nalla 5.5". On 29th - Rajura 11.8".
Bidar	..	..	..	..	..	..	..	1.8	
Karimnagar	1.0	1.9	1.9	1.4	..	..	..	..	On 24th - Karimnagar 5.1". On 26th - Ramagundam 5.0".
Medak	..	..	..	..	..	..	1.6	..	
Nanded	..	..	1.0	..	..	..	..	..	
Nizamabad	..	..	..	1.2	..	..	..	2.6	On 30th - Jakora 6.3", Bomedrapalli 5.6".
Parbhani	..	..	1.4	..	..	..	..	..	
Nalgonda	..	..	..	..	..	..	1.3	1.0	
Warangal	..	..	1.1	..	..	..	..	..	
Madhya Bharat									
Shajapur	1.1	1.0	..	..	..	..	..	..	
Ratlam	..	..	1.2	..	..	..	..	..	
Dewas	1.1	..	..	..	1.4	..	..	..	
Indore	..	..	..	..	1.7	1.2	..	..	
Nimar	..	..	..	..	2.4	..	..	..	
Dhar	..	..	..	1.5	1.7	..	..	..	
Jhabua	..	..	..	..	5.2	..	..	..	
Raesen	..	..	..	..	..	1.0	..	..	
Bhopal									
Sehore	1.1	..	..	..	..	..	..	..	On 23rd - Sehore(Quasba) 6.0".

State and District	District averages on 23.6	24.6	25.6	26.6	27.6	28.6	29.6	30.6	Particular heavy falls
Vindhya Pradesh									
Rewa	..	1.0	..	..	..	..	..	..	
Madhya Pradesh									
Raipur	..	1.1	..	..	..	..	..	..	
Bastar	..	1.2	..	2.4	..	..	..	..	On 26th - Konta 5.6", Sukma 5.2".
Chanda	..	1.0	..	..	..	1.4	..	..	On 24th - Dhanora 6.5".
Nimar	..	1.0	..	2.0	1.2	..	..	..	
Betul	1.3	..	1.0	..	2.4	..	..	..	
Wardha	..	..	..	..	2.0	..	..	..	
Nagpur	..	..	..	..	1.4	..	..	..	
Akola	..	1.2	..	1.1	1.3	1.0	1.0	..	
Buldhana	..	1.3	..	1.2	..	..	..	..	
Yeotmal	..	..	..	..	1.4	1.7	1.6	..	
Rajasthan									
Dungarpur	..	..	1.5	..	..	..	..	..	
Jalore	..	..	..	..	..	1.4	..	..	
Bombay State									
Banaskantha	..	..	..	1.8	2.4	..	..	..	
Sabarkantha	..	..	..	1.1	1.8	..	..	..	On 26th - Idar 5.1".
Panchamahals	..	..	..	..	2.0	..	..	..	
Thana	..	..	1.0	1.4	2.2	1.2	1.3	3.8	On 27th - Thana 5.3". On 30th - Thana 7.3", Bassein 10.0",Dahanu 6.3",Borivli 7.0"
Bombay	..	1.1	1.1	2.0	3.6	..	2.1	4.0	
Kolaba	..	..	..	2.7	2.9	1.9	2.3	4.4	On 26th - Pen 6.7". On 27th - Roha 5.5". On 29th - Matheran 6.3". On 30th - Panvel 5.6", Uran Petha 7.1", Shriwardhan Peta 8.4", Murud Peta 5.5", Alibag 6.7".
Ratnagiri	..	1.8	2.2	4.2	1.9	2.2	2.4	..	On 25th - Kundal Peta 5.2". On 26th - Ratnagiri 6.8", Sawantwadi 7.7", Kundal Peta 5.6", On 27th - Mandangad 5.5". On 28th - Mandangad 5.7". On 29th - Mandangad 5.3", Guhagarh 5.7". On 30th - Langa Peta 6.7", Mandagad 5.5", Ratnagiri 6.8", Rajapur 8.9".

State and District	District averages on								Particularly heavy falls
	23.6	24.6	25.6	26.6	27.6	28.6	29.6	30.6	
North Kanara	..	1.6	1.5	3.4	3.4	1.8	3.4	3.1	On 24th - Karwar 5.8". On 25th - Bhatkal Peta 5.3" On 26th - Bhatkal 7.4" /On 27th - Sirai 5.6", Siddapur 5.3". /On 29th - Supa Peta 5.9", Yellapur 5.7", Sirsi 7.1", Siddapur 6.7". On 30th - Siddapur 6.7".
West Khandesh	..	1.3	..	..	..	..	..	..	
East Khandesh	..	1.8	1.0	..	1.6	..	..	..	
Kolhapur	..	..	..	1.1	2.1	1.6	2.1	1.3	On 26th - Gaganbawada 6.3". On 27th - Radhanagari 5.1". On 29th - Radhanagari 5.5", Ajara Peta 6.2". On 30th - Gaganbawada 10.1".
Belgaum	..	..	..	..	1.2	..	1.6	..	On 29th - Chandgad 5.9", Khanapur 7.1".
Saurashtra	..	..	..	..	..	..	..	1.4	
Amroli	..	..	..	..	..	..	..	1.9	On 30th - Dwarka 9.1".

7. Shallow depression in east Arabian Sea - 26th and 27th June 1956

A trough of low pressure developed in the east Arabian Sea off the Kanara - Konkan coasts on the morning of 23rd June. Shifting northwards, it lay off the north Konkan - south Kathiawar coasts on the 25th morning and was well marked. It concentrated into a shallow depression on the next morning with centre about 50 miles southwest of Veraval. The pressure departure near the centre was about -8 mb. Moving northwestwards, it lay centred about 100 miles to the west of Dwarka on 27th morning. It weakened into a trough of low pressure by the same evening and persisted as a diffuse low pressure area over the north Arabian Sea till 30th June. Later, it moved northwards and merged in the seasonal low.

In association with the formation of the depression, vigorous monsoon conditions prevailed over the Konkan on 26th. The monsoon also extended into Gujarat, Saurashtra and Kutch, Madhya Bharat and south Rajasthan under the combined influence of this depression and the Bay cyclonic storm of 24th to 26th June. According to press reports, the heavy rains in Saurashtra caused a few deaths and extensive damage to crops and property. Breaches in the railway tracks at several places in Kutch and Saurashtra were also reported.

The district averages and noteworthy amounts of rainfall associated with this depression and the Bay cyclone of 26th to 27th June 1956 are given already.

8. Deep Bay depression - 1st to 5th July 1956

The monsoon trough on sea level chart extended into the north-west Bay of Bengal on the evening of 27th and further southwards into the adjoining west central Bay on the next day morning. The trough of low pressure persisted for the next three days and intensified into a well marked low pressure area on the morning of 1st July. The following observations recorded on the 1st morning are relevant.

Name of the ship or station	Position Lat. °N	Long. °E	Hour of Obsn.	Wind Direction	Speed knots	Weather remarks
S.S. Jalayamuna	19.0	87.0	0530	NE	10	
S.S. Maharaja	18.5	89.4	0530	WSW	15	
S.S. Havildar	18.8	90.8	0530	SSW	15	
S.S. Havildar	19.1	90.0	1130	S	15	
S.S. Maharaja	19.1	88.7	1130	ESE	10	
Sandheads			0830	E	5	
Puri			0830	NE	10	
Calingapatam			0830	WNW	5	Overcast

The low pressure area concentrated into a depression in the evening with centre at 1730 hrs IST near Lat. 19.0°N and Long. 87.5°E. The upper winds upto 5,000' a.s.l. over the north and west central Bay were of the order of 25 knots. The depression became deep the next morning. Saugor Island reported easterly wind of 50 knots at 0830 hrs IST and the deep depression was centred at that time near Lat. 20.5°N and Long. 87.0°E. The pressure departure at the centre was about -7 mb. Moving in a northwesterly direction, the deep depression crossed the Orissa coast between Puri and Chandbali that night and was centred about 30 miles to the northeast of Angul, the pressure departure at the centre being about -9 mb. Moving slowly in a westerly direction and weakening at the same time, it lay as a depression at 0830 hrs IST of 4th with centre about 70 miles westsouthwest of Sambalpur. In the course of the next 24 hours, it weakened further and lay on the 5th morning as a low extending from northeast Madhya Pradesh to southwest Rajasthan. It became unimportant by 6th.

In association with this depression, both the Bay and the Arabian Sea branches of the monsoon strengthened. Locally heavy to very heavy rains occurred in Orissa, Gujarat, Saurashtra and Kutch and along the west coast. The following table gives the districtwise averages and significant amounts of heavy rainfall associated with the depression. Rainfall data from Orissa State are not available.

State and District	District averages on 1.7	2.7	3.7	4.7	5.7	6.7	Particularly heavy falls
Bombay State							
Saurashtra	..	1.5	1.9	3.0	2.9	..	On 1st - Junagad 5.1". On 2nd - Jafrabad 5.5". On 4th Navnagar 6.4", Gondal 6.8", Junagad 7.4". On 5th - Rajkot 6.4", Doraji 10.0", Porbandar 7,1", Dharangadhra 5.8", Vankaner 6.0", Mahuva 5.5". On 6th - Porbandar 7.4".
Kutch	..	..	1.1	1.1	1.1	1.6	On 6th - Rahapur 6.5".
Banaskantha	..	1.4	3.6	1.2	..	..	On 2nd - Palanpur 6.2". On 3rd - Deesa 6.0",Wadgam (Peta) 6,2".
Mehsana	1.0	1.7	3.3	1.9	1.2	..	On 1st - Patan 5.4". On 2nd - Patan 6.0". On 3rd - Mehsana 8.7",Kalol 8.3".
Sabarkantha	..	..	1.7	1.1	1.0	1.7	On 4th - Modasa 6.0". On 6th - Idar 7.0".
Ahmedabad	..	..	2.4	2.8	1.7	..	On 3rd - Aslali 5.7", Dehgam 5.2". On 4th - Ahmedabad 5.1".
Kaira	..	..	2.3	3.3	..	..	On 4th - Mahudha (Dispensary) 5.3", Savji Tank 5.0".
Amreli	1.6	..	..	..	1.7	1.1	On 1st - Kodinar 5.0".
Baroda	..	1.5	1.6	2.3	..	1.0	
Broach	1.0	1.0	1.2	1.1	1.1	..	
Surat	1.2	5.5	4.7	3.7	3.4	1.4	On 2nd - Mandvi 6.9", Bardoli 9.5", Valed (Peta) 7.1", Bulsar 5.8", Pardi 6.1", Bansada 8.5", Mahuva 6.8", Gandevi (Peta) 7.6", Palsana (Peta) 5.5"; Vyara 5.8", Chikhi 9.2". On 3rd - Mandvi 7.3", Valod (Peta) 7.3", Chikhi 5.9", Bansada 7.1", Navasari 6.4", Songadh 6.3", Mahuva 6.5", Palsana (Peta) 12.1", Kamraj 5.5", Vyara 7.3". On 4th - Bulsar 8.0", Bansada 11.5", Gandevi (Peta) 9.3". On 5th - Valod (Peta) 5.4", Chikhi 6.4", Bulsar 6.5", Pardi 5.5", Dharampur 7.7", Bansada 5.0", Mahuva 5.2", Gandevi (Peta) 5.5".
Thana	5.3	3.6	..	4.4	3.7	1.0	On 1st - Mahim 6.4", Dahanu 17.0". On 2nd Shahapur 7.3", Mahim 5.2", Jawahar 5.5", Vada 5.3". On 4th - Kalyan 5.1", Shahapur 7.3", Mokhada (Peta) 7.5", Vada 5.3", Dahanu 7.5", Jawahar 6.9". On 5th - Shahapur 7.5", Mokhada (Peta) 6.7", Vada 7.7".

State and Districts	District averages on 1.7	2.7	3.7	4.7	5.7	6.7	Particularly heavy falls
Kolaba	3.5	6.1	1.4	3.0	3.3	1.1	On 1st - Sudhagad (Peta) 5.4", Mhasala (Peta) 6.1". On 2nd - Alibag 5.3" Karjat 5.8", Matheran (Dispensary) 10.0", Pen 7.6", Roha 7.9", Mangaon 6.7", Mahad 7.3", Shriwardhan 6.0", Murud 5.7", Sudhagad 7.3", Poladpur (Peta) 5.2", Khalapur 7.5". On 4th - Matheran (Dispensary) 8.2", Karjat 5.3". On 5th - Karjat 6.0", Matheran (Dispensary) 9.8", Pen 5.1',Khalapur 5.9".
Ratnagiri	2.2	2.3	1.5	1.8	2.2	1.4	On 1st - Mandangad 5.7". On 2nd - Khed 5.2",Mandangad 11.6". On 3rd - Mandangad 5.3". On 4th - Mandangad 5.4".
North Kanara	3.3	2.9	1.1	1.1	1.8	1.7	On 1st Yellapur 6.6". On 2nd Siddapur 5.5".
Bombay	1.7	2.7	..	1.4	2.7	..	
Madhya Bharat							
Jhabua	..	..	1.3	..	..	..	
Bhopal							
Sehore	1.5	..	..	..	..	..	
Madhya Pradesh							
Drug	..	..	1.9	2.3	1.7	..	
Raipur	..	..	2.5	2.7	..	..	On 3rd - Garibund 6.2", Rajim 5.5". On 4th - Mahasamund 9.7", Sandi 5.4", Pallari 5.1", Arjuni 8.5".
Bilaspur	..	..	..	..	..	1.8	On 6th Bilaspur 5.1".
Raigarh	..	..	..	..	..	1.7	
Bastar	..	1.0	2.2	2.3	..	..	
Sagar	..	1.1	..	..	..	..	
Mandla	..	..	1.3	..	..	1.3	
Travancore - Cochin State							
Malbar	3.9	1.3	..	1.4	1.5	2.2	On 1st - Vayithiri 6.8", Manantoddy 5.5", Irrikur 8.4", Taliparamba 7.5", Lakkidi 8.3", Thargarapadi 7.2". On 2nd - Thargarapadi 6.5". On 5th - Vayithiri 5.5". On 6th - Lakkidi 5.3", Tharagarapadi 6.4".
Quilon Division	1.2	..	..	..	..	..	

State and Districts	District averages on 1.7	2.7	3.7	4.7	5.7	6.7	Particularly heavy falls
South Kanara	5.6	1.3	..	..	1.4	1.3	On 1st - Baindur 5.9", Karkai 5.9", Mulki 6.3", Mangalore 6.3", Belthangady 7.4", Puttur 6.1", Kasargod 7.9", Hosdurg 7.1".
Cochin Division	2.5	..	..	..	..	..	
Madhya Pradesh							
Chanda	1.3	1.5	..	1.5	..	1.2	On 1st Sironcha 6.5".
Balaghat	..	..	1.4	2.3	1.7	..	On 4th - Baihar 6.0". On 5th-Lanji 7.2"
Akola	..	1.2	..	..	..	..	

9. Depression in the Bay of Bengal - 1st to 7th August 1956

A low pressure area formed in the northwest and adjoining west central Bay on 31st July. The following observations recorded on that day are relevant.

Name of station or ship	Position Lat. °N	Long. °E	Hour of Obsn. I.S.T.	Wind Direction	Speed Knots	Weather Remarks
S.S.Jalausha	19.0	87.0	0530	W	10	Squally
S.S.Jalausha	18.3	86.8	1130	W	10	Moderate continuous rain
Sandheads			0830	E	15	
Puri			0830	NNE	5	
Calingapatam			0830	WNW	5	Overcast

Pressure fell further over the northwest and adjoining west central Bay during the next 24 hours and the low pressure area concentrated into a depression on the morning of 1st August with centre at 0830 hrs IST near Lat. 19.5°N and Long. 87.5°E. It moved north and was centred near Lat. 20.5°N and 87.5°E on the morning of 2nd. The pressure departure near the centre was about -7 mb. Moving in a northwesterly direction, it crossed coast between Chandbali and Balasore on the next morning and was centred between Ambikapur and Pendra at 0830 hrs IST of 4th. The pressure departure near the centre was about -10 mb. The depression lay over Madhya Bharat and neighbourhood on 5th with its centre between Jhalawar and Neemuch at 0830 hrs IST. Thereafter, it had a more westerly course and lay over southwest Rajasthan and neighbourhood on 6th. It weakened and emerged into the northeast Arabian Sea as a low pressure area on 7th and became unimportant thereafter.

In association with the depression, strong to vigorous monsoon conditions prevalied over the north Konkan and north Deccan (Desh) during the period 1st to 3rd August, the rainfall being exceptionally heavy over the

Deccan Ghats and neighbourhood. Khandala and Mahabaleshwar reported record rainfalls of 18.7" on 2nd and 13.4" on 3rd respectively. The torrential rains led to flooding of low lying areas in several parts of north Konkan and north Deccan (Desh). Widespread rain with locally heavy to very heavy falls also occurred in Gujarat and Saurashtra and Kutch. According to press reports, thousands of people in the north Konkan, north Deccan (Desh), Gujarat and Saurashtra and Kutch were rendered homeless due to collapse of the houses. Rail and road communications were also dislocated at a number of places. The following table gives the district averages and heavy rainfall amounts associated with the depression.

State and District	District averages on									Particularly heavy falls
	30.7	31.7	1.8	2.8	3.8	4.8	5.8	6.8	7.8	
Bombay	..	..	..	1.5	1.9	1.3	..	..	..	On 3rd Aug - Kankrej 5.0". On 4th Aug - Deodhar 5.3".
Mehsana	..	..	..	..	2.5	1.5	1.7	1.0	..	On 3rd Aug - Sami Peta 6.4". On 4th Aug - Radhanpur 6.1". On 5th Aug - Santalpur 5.9".
Sabarkanta	..	..	1.0	1.1	..	..	..	1.1	..	
Ahmedabad	..	..	..	..	1.6	3.1	1.9	..	..	On 4th Aug - Sanad Peta 6.4". On 5th Aug - Ranapur (Dispensary) 6.3".
Kaira	..	..	..	1.3	2.5	3.2	3.1	1.2	..	On 4th Aug - Kaira 6.4", Nadiad 6.4", Tranza Nagrame Tanke 6.1", Pinglaj 5.6". On 5th Aug - Nadiad 6.1", Anand 7.5", Borsad 8.1", Sayat Tank 5.4".
Panchmahals	..	..	1.0	1.4	3.2	..	..	..	..	On 2nd Aug - Godhra 5.2". On 3rd Aug - Lunawada 5.0", Baira 5.9".
Baroda	..	..	..	2.0	3.2	1.5	6.0	1.5	..	On 3rd Aug - Jetapur 5.0", Baria Chotta Udepur 5.7". On 5th Aug - Baroda 9.9", Dabhoi 5.2", Padra 11.9", Sinor Peta 5.0", Sankheda 7.3", Karjan 10.5".
Broach	..	..	1.0	1.9	1.5	3.9	2.2	..	..	On 4th Aug - Vagra 6.2", Jambusar 7.5", Bhalad (Dispensary) 8.7", Jhagadia 6.0".
Surat	..	..	..	1.3	1.1	..	1.8	..	..	On 5th Aug - Olpad 6.4".
Bombay	6.5	..	..	..	..	..	..	..	..	On 30th July - Bombay 6.5".
Thana	2.5	3.7	7.5	6.9	4.7	1.2	..	..	..	On 30th July - Thana 5.0", Borivli 5.2". On 31st July - Kalyan 6.1", Mahim 5.0", Borivli 6.3".

State and District	District averages on 30.7	31.7	1.8	2.8	3.8	4.8	5.8	6.8	7.8	Particularly heavy falls
										On 1st Aug - Thana 6.6", Kalyan 7.6", Mokhada Peta 9.2", Bhiwandi 6.0", Bassein 7.8", Vada 8.2", Mahim 13.0", Dahanu 6.9", Borivli 7.7", Jawhar 12.6". On 2nd Aug - Thana 9.2", Kalyan 5.2", Murbad 5.1", Shahapur 7.4", Mokhada Peta 6.1", Bassein 5.2", Vada 9.1", Mahim 7.0", Dahanu 7.3", Umbergaon 6.5", Borivli 8.1", Jawhar 9.8". On 3rd Aug - Thana 5.0", Murbad 6.0", Shahapur 8.4", Mokhada Peta 7.9", Vada 3.9", Jawhar 10.2".
Kolaba	3.7	3.5	5.4	6.2	3.6	1.6	..	..	..	On 30th July - Roha 5.9", Mangaon 5.2". On 31st July - Panvel 6.7", Matheran (Dispensary) 7.1", Khalapur 5.1". On 1st Aug - Panvel 6.3", Karjat 7.8", Matheran (Dispensary) 11.8", Roha 5.9", Sudhagad Peta 7.3", Poladpur Peta 5.4", Khalapur 5.3". On 2nd Aug - Panvel 9.1", Uran Peta 6.3", Karjat 12.2", Khalapur 11.0", Matheran (Dispensary) 17.4", Pen 7.5", Sudhagad Peta 7.6". On 3rd Aug - Panvel 6.1", Karjat 13.9", Matheran (Dispensary) 16.8", Sudhagad Peta 6.3", Poladpur Peta 5.2", Khalapur 6.7".
North Kanara	..	1.9	1.2	1.0	..	1.9	2.0	..	..	
Ratnagiri	4.1	2.7	3.5	2.9	3.3	2.8	1.1	..	..	On 30th July - Ratnagiri 5.3", Guhagar 5.4", Mandangad 5.5", Lanja Peta 5.5", Sawantwadi 5.1". On 31st July - Devrukh 6.7", Mandangad 5.5". On 1st Aug - Chiplun 5.8", Dapoli 7.1", Mandangad 5.3". On 2nd Aug - Chiplun 7.4", Khed 6.2", Dapoli 6.5". On 3rd Aug - Chiplun 6.7", Guhagar 5.6", Dapoli 5.4", Lanja Peta 5.2", Mandangad 5.4". On 4th Aug - Sawantwadi 6.4".

Sate and District	District averages on									Particularly heavy falls
	30.7	31.7	1.8	2.8	3.8	4.8	5.8	6.8	7.8	
West Khandesh	..	..	..	..	1.0	..	1.0	..	..	
East Khandesh	..	..	0.9	..	..	..	..	..	..	
Dangs	..	..	3.3	3.4	3.1	..	..	..	..	
Nasik	..	..	1.5	1.9	2.7	1.4	..	..	..	On 1st Aug - Trimbak (Dispensary) 7.0", Igatpuri 6.7". On 2nd Aug - Trimbak (Dispensary) 6.3", Igatpuri 9.5", Surgana Peta 6.4". On 3rd Aug - Trimbak (Dispensary) 9.1", Igatpuri 11.8".
Poona	..	1.1	1.8	4.0	4.8	1.7	..	..	..	On 31st July - Khandala 8.1", Lonavala 6.6". On 1st Aug - Lonavala 8.6", Khandala 8.8". On 2nd Aug - Lonavala 19.4", Khandala 18.7". On 3rd Aug - Paud 5.5", Vadgaon 5.2", Lonavala 15.3", Junnar 6.8", Khandala 15.7", Velhe Peta 7.6". On 4th Aug - Lonavala 6.4".
South Satara	..	..	..	..	1.5	..	..	..	..	
North Satara	..	..	1.3	2.0	2.8	1.9	..	..	..	On 30th July - Mahabaleshwar Peta 5.1". On 31st July - Mahabaleshwar Peta 7.1". On 1st Aug - Mahabaleshwar Peta 8.1". On 2nd Aug - Mahabaleshwar Peta 11.1". On 3rd Aug - Mahabaleshwar Peta 13.4", Patan 5.6". On 4th Aug - Mahabaleshwar Peta 12.1".
Kolhapur	..	1.1	1.2	2.0	2.5	4.2	1.9	..	..	On 31st July - Gaganbawada Peta 5.5". On 3rd Aug - Radhanagari 6.1". On 4th Aug - Gaganbawada 8.1", Radhanagari 7.7". On 5th Aug - Radhanagari 6.9".
Belgaum	..	..	..	..	..	2.3	1.3	..	..	
Bijapur	1.2	..	..	..	..	..	..	..	..	
Saurashtra	..	..	..	..	..	1.6	2.7	1.1	..	On 5th Aug - Rajkot 5.3", Dharangadhra 11.3". On 6th Aug - Rajkot 6.7".

State and District	District averages on 30.7	31.7	1.8	2.8	3.8	4.8	5.8	6.8	7.8	Particularly heavy falls
Kutch	..	..	..	..	..	2.1	3.3	..	..	On 4th Aug - Rahapur 6.5". On 5th Aug - Rahapur 5.7".
Rajasthan										
Sikar	..	1.4	..	..	..	..	..	..	..	
Jhunjhunu	..	1.7	1.1	..	..	..	..	....	..	
Dungarpur	..	..	1.9	..	..	..	..	..	..	
Chittor	..	..	..	..	1.2	1.7	1.9	..	..	On 5th Aug - Kapasin 5.1".
Bhilwara	..	..	..	..	..	1.5	..	..	..	
Bundi	..	..	2.8	..	..	..	..	..	..	On 1st Aug - Patan 5.1".
Kotah	..	..	1.1	1.0	..	..	1.7	..	..	
Jhalawar	..	..	..	..	..	..	2.1	..	..	On 5th Aug - Pirawa 5.9".
Churu	..	1.7	..	..	..	..	..	..	..	
Ganganagar	..	1.2	..	..	..	..	..	..	..	
Jodhpur	..	..	..	..	..	..	1.2	..	..	
Jalore	..	..	..	1.2	..	..	..	1.1	..	
Sirohi	..	..	2.3	..	..	..	..	..	..	
Hyderabad										
Adilabad	1.4	1.2	1.4	..	..	..	..	..	..	On 30th July - Jowly Nalla 8.0".
Bidar	..	2.4	..	..	..	..	..	..	..	
Bhir	..	1.6	..	..	..	..	..	..	..	
Medak	1.7	..	1.3	..	..	..	..	..	..	
Nanded	..	2.1	..	..	1.7	..	..	..	..	On 31st July - Degloor 5.7".
Nizamabad	..	..	2.1	..	1.2	1.7	..	..	..	
Parbhani	..	2.0	1.4	..	..	..	..	..	..	On 31st July - Jintoor 5.2".
Mahbubnagar	1.8	..	..	..	..	..	..	..	..	
Warangal	1.9	1.2	..	..	..	..	..	..	..	
Madhya Bharat										
Bhind	..	..	1.1	..	..	..	..	..	..	
Guna	..	..	1.9	..	..	..	..	..	..	
Bhilsa	..	..	..	..	..	..	1.3	..	..	
Rajgarh	..	..	..	..	..	..	..	1.1	..	
Shajapur	..	..	..	..	..	..	3.8	..	..	
Ujjain	..	..	..	..	..	1.1	1.0	..	..	
Mandsaur	..	..	..	..	..	..	2.8	..	..	On 5th Aug - Suvasra (Tappa) 6.0".
Dewas	..	..	2.3	..	..	..	..	..	..	
Indore	..	..	..	1.4	..	1.3	..	..	..	
Jhabua	..	..	1.5	1.5	..	..	1.1	..	..	
Sehore	..	1.1	..	..	..	..	..	..	..	
Rewa	..	..	..	1.1	1.1	..	..	1.1	..	
Vindhya Pradesh										
Sidhi	..	..	4.0	..	..	..	..	..	..	
Sadhol	..	..	1.4	..	..	..	..	..	..	
Chhatarpur	..	..	..	..	..	..	..	..	1.3	

State and District	District averages on 30.7	31.7	1.8	2.8	3.8	4.8	5.8	6.8	7.8	Particularly heavy falls
Madhya Pradesh										
Drug	..	..	1.3	..	..	1.1	..	..	..	
Raipur	1.7	..	..	..	..	2.5	..	..	..	On 4th Aug - Rajim 5.1", Lakholi 5.9", Budoni 6.1", Bhalukona 5.4".
Bilaspur	..	..	..	..	..	1.6	..	..	..	On 4th Aug - Bilaspur 5.8".
Raigarh	..	..	..	2.0	..	3.4	..	..	..	
Bastar	..	..	1.3	..	..	1.3	..	..	..	
Surguja	..	..	..	..	..	..	..	1.4	..	
Jabalpur	..	..	..	1.1	..	..	..	..	..	On 7th Aug - Bahoribund 5.0".
Mandla	..	..	..	1.7	1.5	1.1	1.9	..	2.2	
Chanda	..	..	..	..	..	1.1	..	..	..	
Bhandara	..	..	..	..	..	1.1	..	..	1.4	
Balaghat	..	..	..	..	1.4	3.0	2.7	..	1.1	On 4th Aug - Wara Main 5.7", Dhuti 5.3", Kosnir 5.8". On 5th Aug - Balaghat 6.7".
Hoshangabad	..	..	..	..	..	1.7	1.0	..	..	On 4th Aug - Seoni 5.7".
Nimar	..	1.1	..	..	..	..	..	..	..	

10. Bay Depression - 7th to 10th August 1956

A low pressure wave from the east moved across Burma on 5th August. The pressures fell across the Arakan coast and the adjoining north and central Bay of Bengal during the next 24 hours, as the low pressure wave moved into the Bay. Under its influence, a low pressure area formed over the north Bay on 6th. During the next 24 hours, pressures fell along coastal West Bengal and immediate neighbourhood while they rose over the rest of the country. Widespread and heavy rain was reported from coastal West Bengal and north coastal Orissa on the morning of 7th. Balasore reported 7" of rain and Saugor Island and Chandbali 5" each at 0830 hrs IST of 7th. The low pressure area concentrated into a shallow depression on the 7th with centre at 0830 hrs IST near Lat. 21.5°N and Long. 88.0°E. Moving in a northwesterly direction, it crossed coast the same day and was centred near Dhanbad at 1730 hrs IST. Pressure fell by 3 to 4 mb over northeast Madhya Pradesh and adjoining areas of Chota Nagpur during the next 12 hours. The shallow depression deepened and was centred near Daltonganj at 0830 hrs IST of 8th. The pressure departure near the centre was about -5mb. Moving in a west northwesterly direction, it lay over Vindhya Pradesh with centre near Sutna at 0830 hrs IST on 9th. Taking a northwesterly course, thereafter, it moved into southwest Uttar Pradesh on 10th. It weakened gradually without further movement and filled up by 12th.

Under the influence of this depression, the monsoon continued to be active over north Madhya Bharat, north Madhya Pradesh and Vindhya Pradesh and revived in Uttar Pradesh and the Punjab (I).

The following table gives the district averages and noteworthy amounts of rainfall associated with the depression. Provincial rain-gauge data from Orissa are not available.

State and District	District averages on 7.8	8.8	9.8	10.8	11.8	12.8	Particularly heavy falls
Madhya Bharat							
Bhind	..	..	1.1	..	..	..	
Morena	..	..	1.4	2.9	1.1	..	On 10th - Sabalgarh 6.0".
Gird	..	1.7	1.7	..	..	3.2	On 12th - Pitchore 6.1", Bhander 6.3".
Shivpuri	..	..	5.0	4.9	..	..	On 9th - Karera 5.4". On 10th - Shivpuri 5.4".
Guna	2.0	..	2.5	3.3	..	..	
Bhilsa	1.3	..	2.1	2.2	..	..	
Raigarh	..	..	1.1	1.3	..	..	
Raesen	..	..	1.5	1.1	..	..	
Sehore	..	..	1.3	..	..	..	
Vindhya Pradesh							
Rewa	..	1.4	2.5	..	..	..	On 9th - Rewa 6.1", Govindgarh 5.1".
Sutna	..	1.9	2.8	..	..	1.2	On 9th - Jase 5.5".
Sidhi	1.3	1.9	3.9	..	..	..	
Sadhol	..	2.3	1.3	..	..	..	
Panna	..	2.3	3.2	1.5	..	..	
Chhatarpur	1.3	2.2	2.5	2.6	..	..	On 10th - Chhatarpur 5.8".
Tikamgarh	..	..	3.7	6.8	..	1.2	On 9th - Tikamgarh 6.0". On 10th - Tikamgarh 9.0".
Datia	..	2.1	2.7	..	..	3.7	
Madhya Pradesh							
Bilaspur	..	1.2	..	..	..	..	
Raigarh	..	1.8	..	..	..	..	
Surguja	1.1	2.0	..	..	..	..	
Jabalpur	..	1.8	3.0	..	..	..	On 7th - Bahoribund 5.0".
Mandla	2.1	2.4	1.0	..	..	..	On 8th - Shahapura 6.2".
Bhandara	1.4	..	..	..	..	..	
Balaghat	1.1	1.2	..	..	..	..	
Hoshangabad	..	1.0	1.6	..	..	..	
Sagar	..	..	..	..	..	..	On 9th - Sagar 6.1", Chandia Nallah 5.3".
Punjab (I)						..	
Ambala	..	..	..	1.9	..	..	
Simla	..	..	..	1.6	..	1.5	
Kangra	..	..	..	..	1.9	2.0	On 11th - Hamirpur 5.1", Nurpur 5.2". On 12th - Nurpur 5.4".
Hoshiarpur	..	..	..	1.4	..	..	
Ludhiana	..	..	..	1.8	..	..	
Gurdaspur	..	..	..	..	1.9	1.5	

State and District	District averages on 7.8	8.8	9.8	10.8	11.8	12.8	Particularly heavy falls
Uttar Pradesh							
Basti	..	1.1	..	..	..	..	
Nainital	..	1.7	..	..	..	..	On 8th - Kaladhungi 6.1".
Almora	..	..	..	6.8	..	..	On 10th - Askote 5.1".
Pratapgarh	..	..	1.1	..	..	..	
Patiala Division							
Mahendra Garh	..	..	..	..	1.3	..	
Patiala	..	..	1.2	1.2	1.3	..	
Kandaghat	..	..	..	..	..	2.2	
UTTAR PRADESH							
Dehra Dun	..	..	1.7	..	..	..	
Bulandshahr	..	..	..	..	..	1.1	
Agra	..	..	1.1	..	..	..	
Etawah	..	1.3	1.2	..	..	..	
Allahabad	1.0	..	..	..	..	..	
Jhansi	..	1.2	2.6	3.6	..	..	On 9th - Lalitpur 5.7". On 10th - Jhansi 5.2", Jhansi (Obsy.) 5.2", Lalitpur 7.9".
Jalaun	..	..	1.3	..	..	..	
Hamirpur	..	..	1.0	..	..	..	
Banda	..	..	..	..	..	1.0	
Mirzapur	..	3.4	..	..	..	..	On 8th - Robertsganj 5.6", Chunar 5.7".
Jaunpur	1.2	..	..	..	..	..	

11. Bay depression - 14th to 19th August 1956.

In association with the movement of a low pressure wave from Burma, a trough of low pressure developed over the north and adjoining east central Bay of Bengal on 12th. It concentrated into a depression on 14th with centre at 0830 hrs IST close to Lat. 18.0°N and Long. 88.0°E. The following observations recorded on 14th are relevant.

Name of Station or Ship	Position Lat. °N	Long. °E	Hour of Obsn. I.S.T.	Wind Direction	Wind Speed Knots	Weather Remarks
S.S. Rhodesia	18.6	91.0	1130	SE	25	
Sandheads			0830	E	10	
Puri			0830	NE	5	
Gopalpur			0830	NNW	5	
Calingapatam			0830	WNW	5	Overcast

Moving slowly in a northnorthwesterly direction, the depression was centred near Lat. 19.0°N and Long. 87.5°E on 15th. The depression began to recurve thereafter and moving northnortheastwards, it was centred near Lat. 20.5°N and Long. 88.0°E at 0830 hrs IST on 16th. The pressure departure near the centre was about -7mb. It crossed the coast on the same evening near Long. 88.5°E and was centred about 50 miles to the southeast of Berhampore at 0830 hrs IST of the next day. Moving northwards, the depression was centred west of Bogra on 18th. It remained there practically stationary for the next 24 hours. Pressures rose to the east of the depression and fell towards the left. The depression then moved northwestwards, weakened into a trough over east Bihar the next day and became unimportant later.

This disturbance caused a northward shift of the seasonal trough resulting in heavy to very heavy rains in northeast India, Uttar Pradesh and the Punjab(I).

The following statement gives the district averages and particularly heavy amounts of rainfall. Figures from Orissa are not available.

State and District	District averages on					Particularly heavy falls
	14.8	15.8	16.8	17.8	18.8	19.8
Uttar Pradesh						
Dehra Dun	..	1.5	..	..	..	1.1
Muzaffarnagar	..	..	..	..	1.2	1.1
Badun	..	..	..	..	..	1.3
Shahjahanpur	..	..	..	1.8	..	1.1
Tehri Garhwal	1.0	..	..	..	..	..
Etawah	..	..	..	1.5	..	..
Hamirpur	..	..	..	1.1	..	..
Banda	..	..	1.1	..	..	..
Benaras	1.3	..	1.4	..	..	..
Mirzapur	2.1	..	..	..	..	..
Jaunpur	1.1	..	..	1.0	..	..
Gazipur	..	..	..	1.5	..	..
Ballia	1.2	..	..	..	..	..
Gorakhpur	1.4	..	..	..	..	..
Deoria	1.5	..	..	..	..	..
Azamgarh	1.0	..	..	..	..	..
Basti	..	..	..	..	..	2.2
Nainital	..	..	..	1.3	..	..
Fatehpur	1.9	..	..	..	..	..
Patiala Division						
Kapurthala	..	1.6	..	..	..	..
Mahendragarh	..	..	..	..	1.6	..

State and District	District averages on 14.8	15.8	16.8	17.8	18.8	19.8	Particularly heavy falls
Patiala	..	..	..	..	..	3.4	
Narwana	..	..	..	..	..	1.4	
Punjab(I)							
Hissar	..	..	..	..	1.2	..	
Karnal	..	..	..	..	..	1.2	
Simla	1.2	..	..	..	..	..	
Kangra	1.1	1.3	..	..	..	..	On 14th - Hamirpur 5.5". On 15th - Dehra 6.3".
Hoshiarpur	2.4	..	..	..	..	1.5	
Ferozpore	..	..	..	..	..	..	On 15th - Abohar 5.3".
Amritsar	..	3.3	..	..	..	..	On 15th - Raya (Canal Raingauge Station) 9.1".
Gurudaspur	..	2.2	..	..	..	..	On 15th - Tibri (Canal Raingauge Station) 5.2".
West Bengal							
24 Parganas	..	..	..	..	..	1.0	
Nadia	..	..	1.1	2.5	1.5	..	
West Dinajpur	..	..	..	..	2.0	1.6	
Malda	1.0	..	..	..	..	..	
Burdwan	..	..	..	1.5	..	..	
Hooghly	..	..	..	1.3	..	..	
Assam							
Golpara	..	..	..	1.5	2.6	..	
Kamrup	..	..	..	1.0	1.0	..	
Cachar	..	..	1.3	..	..	..	
Garo hills	..	..	..	7.6	2.1	..	On 17th - Dalu 9.5", Mohendraganj 5.8".
Khasi and Jaintia hills	..	..	..	2.5	2.7	2.8	
Mizo	1.3	..	1.0	1.2	..	..	On 14th - Demagiri 8.5".
Bihar State							
Shahabad	1.0	..	..	..	..	..	
Purnea	1.8	..	..	..	..	1.2	
Santal Parganas	..	..	..	..	..	..	On 17th - Naya Dumka 5.4".

12. Bay depression - 9th to 16th September 1956.

A low pressure wave from the east was moving westwards across central Burma on 6th and 7th September. It moved into the north Bay on 8th and a shallow low pressure area formed over the northeast Bay on the

same evening. It concentrated into a depression the next morning with centre at 0830 hrs IST within half a degree of Lat. 21.0°N and Long. 89.5°E. The pressure departure from normal was about -9 mb near the centre. Moving in a westnorth-westerly direction, the depression was centred at 0830 hrs IST of 10th close to coast between Balasore and Contai. It crossed the coast the same day. Moving in a north-westerly direction, the depression lay over Chota Nagpur and neighbourhood with centre at 0830 hrs IST of 11th between Hazaribagh and Gaya. Continuing its northwesterly course, it lay over southwest Bihar and adjoining areas of southeast Uttar Pradesh on 12th with centre about 50 miles eastnortheast of Benaras. It remained practically stationary thereafter, weakened slowly and filled up by 16th.

In association with this depression, fairly widespread and locally heavy to very heavy rain occurred in Orissa, West Bengal, Chota Nagpur, Bihar and east Uttar Pradesh. The long spell of heavy to very heavy rains caused extensive floods, collapse of houses and interruption of railway traffic in east Uttar Pradesh and adjoining Bihar. According to press reports, over 15,000 houses collapsed and standing crops on 2 lakhs of acres of land were severely damaged in east Uttar Pradesh. There was also a heavy loss of cattle. The following statement gives the districtwise averages and particularly heavy falls of rainfall associated with the depression. State raingauge data from Orissa are not available.

State and District	District averages on 9.9	10.9	11.9	12.9	13.9	14.9	15.9	16.9	Particularly heavy falls
West Bengal									
West Dinajpur	..	..	2.0	..	..	1.9	..	..	
Darjeeling	..	1.0	1.3	..	..	..	..	..	
Bihar State									
Patna	1.6	1.6	1.7	..	..	..	..	..	
Shahabad	2.1	1.7	3.4	2.2	1.7	2.1	..	..	On 11th - Dehri 5.0", Bhabua 5.5". On 12th - Chand 9.0". On 14th - Buxar 5.0".
Saran	1.6	..	1.1	1.4	1.6	1.4	1.6	1.5	On 16th - Kaliya 8.8", Sepaya 6.4".
Champaran	..	..	..	..	1.3	..	1.8	4.5	On 15th - Lauriya 14.8". On 16th - Motihari 7.2", Bagaha 9.2", Ramnagar 11.2", Narkatiaganj 6.5", Chauradane 7.1".
Muzzaffarpur	..	..	1.9	..	..	..	..		
Darbhanga	..	..	1.1	1.9	1.5	1.6	..	..	On 13th - Phulparas 7.5", Kuseswar Asthan 6.1". On 14th - Resra 5.1".
Monghyr	2.3	1.4	1.4	..	..	..	..	..	On 9th - Sheikhpura 5.1".
Bhagalpur	1.1	2.1	..	..	..	..	1.4	..	On 15th - Sultanganj 5.6".
Saharsa Sub-district	..	..	..	2.1	2.5	..	2.1	..	

State and District	District averages on 9.9	10.9	11.9	12.9	13.9	14.9	15.9	16.9	Particularly heavy falls
Purnea	..	1.2	..	1.6	1.1	..	2.3	1.1	On 13th - Dhamdaha 5.5". On 15th - Purnea 8.3".
Santhal Parganas	..	1.1	1.0	..	..	..	..	..	
Hazaribagh	1.5	1.1	1.5	..	..	..	..	..	
Ranchi	1.5	..	..	..	..	..	..	..	
Palamau	2.8	2.9	1.8	..	..	..	..	..	On 9th - Latehar 5.5", Notarhat 5.5". On 10th - Ranka 8.4", Bhandaria 6.1".
Manbhum	1.2	..	1.1	..	..	..	..	..	
Singhbhum	1.1	..	..	..	..	..	..	..	
Uttar Pradesh									
Dehra Dun	..	1.1	1.5	..	..	..	..	..	
Allahabad	..	1.2	1.2	2.3	1.0	..	1.0	..	
Mirzapur	..	1.5	1.9	3.8	3.4	2.5	2.0	..	On 12th - Mirzapur 5.4". On 13th - Chunar 6.3". On 14th - Hasanpur 5.1".
Banda	..	..	1.2	1.6	..	..	..	..	
Benaras	..	..	1.7	3.7	4.9	3.7	2.9	..	On 13th - Benaras 5.3", Benaras (Obsy.) 6.0", Chandauli 5.4". On 14th - Benares 5.8", Benaras (Obsy.) 6.3".
Jaunpur	..	..	..	3.7	2.1	2.4	4.1	..	On 12th - Mechhlishahr 5.6". On 15th - Korakat 8.3".
Ballia	2.0	..	..	2.2	..	1.2	1.6	..	
Ghazipur	1.5	1.6	1.9	3.2	3.3	2.9	4.2	..	On 13th - Saidpur Bhitari 6.3", On 15th Ghazipur 6.2", Saidpur Bhitari 5.4".
Gorakhpur	4.0	..	1.1	1.5	..	..	2.7	2.1	On 9th - Maharajganj 6.5", Nautanwa 8.0". On 15th - Gorakhpur 6.5".
Deoria	4.3	..	..	1.8	1.2	1.7	3.3	4.5	On 9th - Deoria 7.1". On 14th - Salimpur 5.1". On 16th - Padrauna 10.6".
Basti	1.9	..	..	1.4	1.4	..	..	1.5	
Azamgarh	2.2	1.5	2.2	2.9	2.5	3.0	7.1	1.3	On 15th - Azamgarh 8.3", Mahul (Phulpur) 7.9", Jiwanpur (Sagari) 9.8", Mohammadabad 8.3", Ghosi 7.2".
Unnao	..	..	..	1.3	..	..	..	..	
Rae Bareli	..	..	..	2.3	1.1	..	..	..	
Faizabad	..	..	..	..	..	..	1.0	..	
Gonda	..	..	..	2.0	..	..	..	..	
Sultanpur	..	..	..	1.8	..	..	..	..	
Pratapgarh	..	..	..	2.1	1.1	..	..	..	
Barabanki	..	..	..	3.5	1.5	..	..	..	

State and District	District averages on 9.9	10.9	11.9	12.9	13.9	14.9	15.9	16.9	Particularly heavy falls
Assam									
Kamrup	1.1	..	..	..	..	..	..	..	
Garo hills	..	1.7	..	..	..	..	..	..	
Khasi & Jaintia Hills	..	2.4	2.1	..	..	..	..	..	On 10th - Mawsynram 6.6". On 11th - Cherrapunji 5.5".

13. Arabian Sea Depression - 7th to 12th October 1956.

A well marked low pressure area developed in the east central Arabian Sea off the Kanara - south Konkan coasts on the morning of 5th October. The low gradually shifted northwards and concentrated into a depression by the evening of 7th with centre at 1730 hrs IST near Lat. 17.5°N and Long. 71.5°E. It was centred near Lat. 18.5°N and Long. 71.0°E at 0830 hrs IST of the next day. The following observations reported on the morning of 8th are relevant.

Name of the ship or station	Position Lat. °N	Long. °E	Time of Obsn. I.S.T.	Wind Direction	Speed	Weather remarks
S.S. Albania	17.0	71.4	0930	SW	25	Moderate sea and swell and occasional showers.
S.S. Venobal	16.5	69.5	1130	NNW	27	Rain squalls
Bombay			0830	SW	5	
Dahanu			0830	E	5	

Continuing to move in a northerly direction, the depression was centred near Lat. 19.5°N and Long. 71.0°E at 0830 hrs IST of 9th. The pressure departure near the centre was about -10 mb. Moving in a north-northeasterly direction thereafter, it lay over the Gulf of Cambay on the morning of 10th with centre at 0830 hrs IST between Surat and Bhavnagar. It crossed the coast by noon and continuing to move in a northnortheasterly direction, it lay over northeast Rajasthan with centre near Sikar on the morning of 11th. It broke up over the Punjab hills on the 12th.

In association with the depression, the monsoon strengthened along the west coast, in Gujarat and Saurashtra and Kutch. Considerable influx of maritime air took place over the region extending from coastal Andhradesa and Orissa to aeast Rajasthan, Uttar Pradesh and the Punjab (I). The monsoon which had temporarily withdrawn from the Punjab(I), Rajasthan north Madhya Bharat and the plains of west Uttar Pradesh by the second week of September, revived under the influence of the depression. The incessant heavy rains caused rapid rise in the water level of all the rivers of the Punjab(I) and of Uttar Pradesh, many of them bursting their banks and flooding large tracts of land.

The devastated area in Uttar Pradesh has been estimated to exceed 55 lakhs of acres. The damage to crops amounted to about 30 crores of rupees. About 50 persons were also reported to have lost their lives.

The following table gives the district-wise averages and heavy rainfall amounts associated with the depression. Rainfall data of Orissa State are not available.

State and District	District averages on 7.10	8.10	9.10	10.10	11.10	12.10	Particularly heavy falls
Bombay State							
Sabarkantha	1.1	1.2	..	1.3	..	..	On 7th - Idar 5.1". On 8th - Idar 5.9".
Ahmedabad	..	..	..	1.8	..	..	On 10th - Dholera (Dispensary) 6.4".
Kaira	..	..	..	2.0	1.4	..	On 10th - Cambay 5.8".
Panch Mahals	..	..	1.4	1.4	..	..	
Baroda	1.0	..	1.2	1.2	..	..	
Broach	..	1.0	1.4	..	..	..	
Kanara	1.1	..	..	..	..	..	On 7th - Bhatkal Peta 6.1".
Nasik	1.6	..	..	..	..	..	
Saurashtra	..	..	..	1.1	..	..	On 9th - Songad 5.1". On 10th - Bhavnagar 6.2", Palitana 12.4".
Rajasthan							
Jaipur	..	1.1	..	..	1.1	..	
Tonk	..	..	..	..	1.1	..	
Alwar	..	..	2.4	2.1	2.1	..	On 9th - Kishanagarh 6.0". On 11th - Lachnangarh 8.3".
Banswara	1.7	..	..	1.5	..	..	
Dungarpur	..	..	1.2	..	1.2	..	
Chittor	2.4	..	1.0	2.0	..	..	
Bhilwara	..	..	..	1.9	..	..	
Kotah	..	2.2	1.7	..	..	..	On 8th - Chechat 5.0".
Bundi	..	1.3	..	1.2	2.8	..	
Jhalawar	..	1.4	1.1	..	..	..	
Nagore	..	1.1	..	..	..	..	
Ajmer	..	..	..	..	..	..	On 7th - Kishangarh 5.4".
Andhra State							
Srikakulam	..	..	1.1	..	..	..	
Vishakhapatnam	..	1.4	1.4	..	..	..	
East Godavari	..	2.9	..	..	..	..	On 7th - Prathipadu 5.0". On 8th - Razole 5.2", Gopalpuram 9.2", Mande Pulanka 6.7", Sakhinatipalli 5.5", Chodavaram 5.1".

State and District	District averages on 7.10	8.10	9.10	10.10	11.10	12.10	Particularly heavy falls
West Godavari	..	4.2	1.2	..	..	..	On 8th - Bhimavaram 5.5", Narsapur 6.2", Palakole 5.5", Yandagandi 5.2", Sidhantam 6.4", Duvva 8.0", Gummampadu 5.0", Kodur 6.1", Lakshmidalem 8.0".
Krishna	2.3	3.2	1.1	..	.. Panarru 5.0".	..	On 7th - Gannavaram 5.3". Nadimolu 5.1", On 8th - Masulipatnam 6.8", Pandraka 6.3", Manginapudi 6.9", Tidal Lock Akumeru 5.4", Cowtaram 6.1".
Guntur	1.1	1.7	..	..	..	..	On 7th - Kollur 5.1". On 8th - Jagarlamudi 5.1", Pedaparru 6.1", Vallatur 5.0", Morthota 5.6".
Travancore-Cochin State							
Kottayam	..	1.0	..	..	..	..	
Quilon Divn.	..	1.2	..	..	..	..	
South Kanara	1.2	..	1.2	1.1	..	..	
Cochin	..	1.2	..	..	..	..	
Punjab							
Rohtak	..	..	1.3	..	..	..	
Gurgaon	..	1.2	2.4	..	..	..	On 9th - Nuh 5.0", Ballabgarh 6.4".
Karnal	..	..	2.5	..	1.8	..	On 9th - Karnal 5.1".
Ambala	..	..	2.1	..	1.8	2.8	On 9th - Dadupur (Canal Dispensary) 6.0".
Simla	..	1.3	1.9	..	1.5	2.3	
Kangra	..	..	..	..	1.6	..	On 12th - Nurpur 5.0".
Hoshiarpur	..	..	..	2.7	3.4	..	
Jullundur	..	..	1.3	3.2	2.3	..	
Ludhiana	..	..	..	2.9	..	..	
Amritsar	..	..	..	1.1	1.7	2.7	On 12th - Khara (Canal raingauge Station) 6.0".
Gurudaspur	..	..	..	1.2	3.5	2.4	On 11th - Tibri (Canal raingauge Station) 5.3", Madhopur (Canal raingauge Station) 5.1", Malikapur (Canal Raingauge Station) 6.0". On 12th - Pathankot 5.2".
Delhi State	..	1.4	1.1	1.7	1.4	1.2	On 11th - Badli 5.3".
Bhatinda	..	..	..	..	1.9	..	
Kapurthala	..	..	..	1.4	3.4	3.4	
Patiala	..	..	..	..	1.1	..	
Fatehgarh Sahib	..	..	..	1.3	1.5	..	
Kandaghat	..	1.1	..	..	1.8	4.9	On 12th - Kandaghat 5.6", Kasan 5.8".

State and District	District averages on 7.10	8.10	9.10	10.10	11.10	12.10	Particularly heavy falls
Sangrur	..	..	..	1.5	..	..	
Barnala	..	..	..	1.2	1.2	..	
Madhya Bharat							
Bhind	..	..	1.1	1.8	2.0	..	
Morena	..	1.9	1.1	..	..	..	
Gird	1.3	1.5	1.8	1.7	1.4	..	
Mandsaur	3.3	2.0	..	1.2	..	..	On 7th - Garoth 5.0"
Jhabua	..	..	..	1.1	..	..	
Tikamgarh	..	..	..	..	1.0	..	
Datia	1.2	1.0	1.7	1.8	1.1	..	
Mysore State							
Bangalore	..	..	..	..	1.0	1.6	
Kolar	1.5	1.1	..	..	1.8	1.3	
Madhya	..	..	..	..	..	1.1	
Uttar Pradesh							
Dehra Dun	..	2.2	4.8	1.2	2.1	1.2	On 8th - Rajpur 6.0". On 9th - Dehra Dun 5.6", Chakrata (Kalsi) 7.5", Dehra Dun(Obsy)5.4".
Saharanpur	..	..	5.4	1.4	..	2.9	On 9th - Nayashar 6.0", Deoband 8.8", Hardwar (Mayapur)6.8", Muhammadpur 7.0", Jaranda 5.3", Salimpur 5.5".
Bulandshahr	1.6	1.9	2.3	2.1	..	..	
Aligarh	..	1.8	1.5	1.5	..	..	
Mathura	..	..	..	1.6	..	..	
Agra	..	1.1	..	..	..	..	
Mainpuri	..	1.3	1.5	..	..	..	
Etah	..	1.9	2.4	1.5	..	..	On 9th - Kasganj 5.0".
Bareilly	1.6	2.6	1.7	..	..	..	On 7th - Debiabhoj 5.0". On 8th - Faridpur 6.3".
Bijnor	..	1.9	5.4	1.9	..	..	On 8th - Dhampur 5.6". On 9th - Dhampur 5.8", Najibabad 5.9".
Badaun	1.9	3.3	3.5	..	..	..	On 8th - Daltonganj 7.5". On 9th - Bisauli 7.2", Sahaswan 5.9".
Moradabad	..	1.8	2.8	1.7	..	..	
Shahajanpur	1.0	3.5	1.7	..	..	..	On 8th - Tilhar 6.2".
Pilibhit	..	4.1	1.7	..	..	..	
Farrukhabad	..	2.5	1.7	..	..	..	
Etawah	..	2.1	1.9	..	..	..	
Kanpur	..	1.1	..	..	..	..	
Fatehpur	..	1.4	..	..	..	..	
Allahabad	..	..	..	..	..	1.3	
Jalaun	1.3	1.0	..	..	..	..	
Muzaffarnagar	..	..	5.9	..	..	1.2	On 9th - Muzaffarnagar 5.2", Kairana 5.6", Budhana 5.0", Jeoli Janasath 10.6", Kandhla 5.5".
Meerut	..	..	4.4	2.2	..	..	On 9th - Sardhana 6.5", Maidana 11.1", Hapur 7.4". On 10th - Ghazibad 5.1", Dasna 5.5".

State and District	District averages on 7.10	8.10	9.10	10.10	11.10	12.10	Particularly heavy falls
Gorakhpur	..	2.5	..	5.9	2.7	..	On 10th - Gorakhpur 5.2", Gorakhpur (obsy) 5.8", Maharajaganj 6.7", Banasgaon 5.7", Pharenda 8.8". On 11th - Gorakhpur (obsy) 6.3".
Deoria	..	..	..	3.1	1.3	..	On 10th - Hata 5.3".
Basti	..	3.2	..	5.5	..	..	On 8th - Domeriaganj 5.2". On 10th - Basti 8.2", Domeriaganj 6.6" Khalilabad 5.1".
Azamgarh	..	..	..	1.1	..	..	
Nainital	3.9	3.1	6.3	2.5	1.3	1.1	On 7th - Nagla 8.4". On 9th - Nainital 11.0", Bazpur 5.1", Garadpur 7.6", Kashipur 9.2", Haldwani 7.1", Ramnagar 5.9", Kothagodam 6.9", Mukteswar (Obsy) 7.6", Nainital (Obsy) 11.9". On 10th-Nainital 6.3", Nagla 5.2", Nainital (Obsy) 7.3".
Almora	..	2.4	4.4	2.5	2.6	1.5	On 9th - Champawat 8.5", Pithorgarh 5.3", Ranikhet 5.5", Kausani 5.9".
Garhwal	..	2.3	4.0	2.8	2.3	..	On 9th - Pauri 6.8", Okhimath 5.6", Karnprayag 5.5", Koldwara 5.3". On 10th - Lansdowne 6.9".
Tehri Grahwal	..	2.3	4.4	1.3	2.0	1.6	On 8th - Keertinagar 7.8". On 9th - Tehri 5.9", Dhanolti 6.9", Deoprayag 8.5".
Umao	..	1.2	..	..	..	1.1	
Rae Bareli	..	..	..	1.5	..	..	
Sitapur	..	3.8	3.0	1.4	..	..	On 8th - Sitapur 6.5".
Hardoi	..	1.9	1.7	1.8	..	..	
Kheri	1.6	3.5	..	..	..	..	On 8th - Kheri 6.5".
Faizabad	..	2.5	..	2.3	..	..	On 10th - Faizabad 6.0".
Gonda	..	2.5	..	3.1	..	..	
Bahraich	..	2.3	2.1	3.3	..	..	
Hyderabad							
Raichur	..	..	..	..	..	1.1	

14. Severe cyclonic storm in the Bay of Bengal - 26th to 31st October 1956.

A low pressure area formed over the Andaman Sea and the adjoining southeast Bay of Bengal on the evening of 25th October and concentrated into a depression on the next morning with centre at 0830 hrs IST near Lat. 6.5°N and Long. 91.0°E. Most of the stations in the Bay Islands and a number of ships in the southeast Bay reported "showers" under present weather on the 26th morning. The following observations are significant.

Name of the ship or station	Position Lat. °N	Long. °E	Hour of Obsn I.S.T.	Wind Direction	Wind Speed knots	Weather Remarks
S.S.Glenartney	5.9	90.0	0530	WNW	15	Showers
S.S. Rosdo	5.8	91.2	0530	W	15	Showers
S.S. Rajula	7.0	92.3	0530	SE	15	Rain during preceding hours.
Car Nicobar			0830	ESE	5	Intermittent rain,moderate
S.S. Rajula	7.5	91.2	1130	E	15	-

The depression moved in a northwesterly direction and was also intensifying at the same time. It became a cyclonic storm of moderate intensity on the morning of 28th with centre at 0830 hrs IST near Lat. 11.0°N and Long. 86.0°E. The observations of the following ships on the 28th morning were significant.

Name of the ship	Position Lat. °N	Long. °E	Hour of Obsn I.S.T.	Wind Direction	Wind Speed knots	Weather Remarks
S.S. Maturta	12.0	85.1	0800	NE	35	Heavy continuous rain
S.S. Malabar	10.7	83.5	0830	WNW	30	Continuous rain

By the afternoon, the cyclonic storm intensified further, became severe probably with an inner core of hurricane-winds and was centres at 1730 hrs. IST near Lat. 12.0°N and Long. 85.0°E. The pressure departure near the centre was about -20 mbs. The following observations of S.S. Muturta, S.S. Malabar and S.S.V. Sunetta which were close to the storm centre on 28th and 29th were interesting.

Name of the ship.	Date	Position Lat. °N	Long. °E	Hour of Obsn. IST.	Wind Direction	Wind Speed knots	Weather Remarks
S.S.Maturta	28	12.0	85.1	0800	NE	35	Heavy continuous rain. Gusty.
S.S.Malabar	28	10.7	83.5	0830	WNW	30	Continuous rain
S.S.Maturta	28	12.6	84.9	1630	E	40	Heavy continuous rain.
S.S.Malabar	28	9.1	83.1	1730	W	25	Rain within sight.
S.S.Maturta	28	13.4	85.5	2030	E	35	Overcast skies. Gusty.
S.S.Sunetta	28	10.5	82.8	2030	W	35	Sky not discernible.

Name of the Ship	Date	Position Lat. °N	Position Long. °E	Hour of Obsn. I.S.T.	Wind Direction	Wind Speed knots	Weather Remarks
S.S.Malabar	28	8.4	82.5	2030	W	25	Rain and showers.
S.S.Maturta	28	13.4	85.6	2330	E	35	Mainly overcast.
S.S.Sunetta	28	11.0	82.8	2330	WNW	35	Sky not discernible.
S.S.Malabar	28	8.4	82.8	2330	WSW	2	Sky clear.
S.S.Sunetta	29	11.2	82.8	0230	W	35	Cloudy.
S.S.Maturta	29	13.8	86.6	0530	SSE	25	Rain and showers.
S.S.Sunetta	29	11.5	82.9	0530	W	35	Overcast.
S.S.Sunetta	29	12.0	82.9	0830	W	35	---
S.S.Maturta	29	14.2	86.7	0830	SSE	25	Light intermittent.
S.S.Sunetta	29	12.0	83.0	1130	WSW	30	---
S.S.Maturta	29	15.1	86.8	1130	SSE	20	Rain and showers.
S.S.Sunetta	29	12.4	83.1	1430	WSW	25	Rain within sight.
S.S.Sunetta	29	13.0	83.1	1730	SSW	25	Rain within sight.
S.S.Sunetta	29	13.5	83.2	2030	S	25	---

The severe cyclonic storm continued to move northwestwards and was centred at 0830 hrs IST of 29th near Lat. 13.0°N and Long. 83.5°E. The upper winds at that time over Madras at 2,000, 3,000 and 5,000 ft. a.s.l. were 54, 72 and 40 knots respectively. It continued to move northwestwards but weakened gradually and lay as a cyclonic storm of moderate intensity at 1730 hrs. IST of the same date with centre near Lat. 14.5°N and Long. 81.5°E. It weakened further as it continued its northwesterly course, crossed the coast near Ongole as a deep depression in the early morning hours of 30th and was centred about 20 miles west of Ongole at 0830 hrs IST of the day. It weakened further into a depression the same evening and lay as a low pressure area over Hyderabad on 31st. The low moved northnortheastwards and lay over northeast Madhya Pradesh and adjoining southeast Uttar Pradesh on the morning of 1st November. The next day, it weakened into a trough of low pressure extending from southeast Uttar Pradesh to Assam and became unimportant on 3rd.

Under the influence of the depression, the Bay Islands had a few heavy to very heavy falls on 27th and 28th. The depression caused widespread rain with some heavy to very heavy falls in coastal Andhradesa and Orissa. Maritime air also penetrated into the rest of northeast India, the central parts of the country and east Uttar Pradesh. The following table gives the district-wise averages and heavy rainfall associated with the storm.

State and District	District averages on 29.10	30.10	31.10	1.11	2.11	Particularly heavy falls
Madhya Pradesh						
Sagar	..	..	..	1.9	..	
Jabalpur	..	..	..	2.1	..	

State and District	District averages on 29.10	30.10	31.10	1.11	2.11	Particularly heavy falls
Mandla	..	..	..	1.6	..	
Betul	..	..	1.6	2.0	..	
Chhindwara	..	..	..	2.8	..	On 1st Nov. - Harra 5.8", Amarwara 5.4", Chhindwara 5.0".
Amravati	..	..	1.1	..	..	
Yeotmal	..	..	1.2	..	..	
Damoh	..	..	..	3.2	..	
Narsinhapur	..	..	..	2.9	..	
Vindhya Pradesh						
Rewa	..	..	..	2.8	..	
Sutna	..	..	..	3.2	..	On 1st Nov. - Nagode 5.0".
Sidhi	..	..	..	1.9	..	
Sadhol	..	..	..	1.0	..	
Panna	..	..	1.2	2.7	..	On 1st Nov.-Devendranagar 5.7".
Uttar Pradesh						
Muzaffarnagar	..	..	..	1.1	..	
Allahabad	..	..	..	3.6	..	On 1st Nov.- Phulpur 5.7".
Banda	..	..	..	1.9	..	
Benaras	..	..	..	2.5	..	
Mirzapur	..	..	..	2.3	..	
Jaunpur	..	..	..	3.3	..	
Ghazipur	..	..	..	3.5	..	
Ballia	..	..	..	1.5	..	
Deoria	..	..	..	1.4	1.5	
Azamgarh	..	..	..	2.6	..	
Faizabad	..	..	..	1.0	..	
Pratapgarh	..	..	..	3.7	..	On 1st Nov. - Patti 5.2".
Andhra State						
Srikakulam	1.5	2.4	1.1	..	..	On 30th Oct. - Ichapuram 8.1".
Visakhapatnam	1.2	1.6	1.2	..	..	
East Godavari	1.2	1.6	..	..	..	On 30th Oct. - Biccavole 5.0".
West Godavari	..	1.7	..	..	..	On 30th Oct. - Yandagandi 5.1".
Guntur	..	1.4	..	..	..	
Nellore	..	4.0	..	..	..	On 30th Oct. - Atmakur 7.0", Nellore (Obsy) 6.0", Krishnapatnam 6.3", Sullurpet 5.7", Buchireddipalem 5.6", Sangam6.6", Surveypalli 7.7", Nampur 5.2", Pumbli 5.2".
Kurnool	..	1.5	..	..	..	On 30th Oct. - Markapur 8.9", Yerragodapalem 6.0".
Cuddapah	..	2.1	..	..	..	On 29th - Brahmanapalli 7.2".
Chittor	..	1.1	..	..	..	
Krishna	..	1.1	..	..	..	

15. Bay Depression - 29th to 20th November 1956.

A low pressure wave from the east moved into the Andaman Seas across Tennaserim on the evening of 14th November. Under its influence, a trough of low pressure lay over the south Andaman Sea and adjoining southeast Bay on 16th. It moved westwards and became wellmarked on 18th over the southwest Bay. It concentrated into a shallow depression on 19th with centre near Lat.9.0°N and Long. 84.0°E. The pressure departure near the centre was about -4mb. Moving in a westnorthwesterly direction, the depression was centred near Lat. 9.5°N and Long. 82.5°E on the same evening and close to coast between Nagapattinam and Cuddalore at 0830 hrs IST of 20th. It weakened into a low pressure area on passing inland and lay over south Mysore and adjoining Madras State the same evening. Moving further westnorthwestwards, the low emerged into the east Arabian Sea on the 21st morning, lay as a well marked trough off the coast and became unimportant by 24th evening.

Under the influence of the depression, the northeast monsoon strengthened over the south Peninsula. Fairly widespread and locally heavy to very heavy rains fell in south Madras on 20th and the rainfall extended into the other parts of the south Peninsula by 21st. The Madras - Tuticorin Express met with a tragic accident at Ariyalur (near Tiruchchirappalli) in the early hours of 23rd due to the washing away of the southern embankments of a railway bridge by heavy rain and resultant floods in Murudiyar river.

Moist air also penetrated into the Konkan, Maharashtra, Vidarbha, west Madhya Pradesh and south Gujarat. The following table gives the district-wise averages of rainfall and heavy amounts associated with the depression.

State and District	District averages on 19.11	20.11	21.11	22.11	23.11	Particularly heavy falls
Bombay State						
East Khandesh	..	..	..	..	1.3	
Nasik	..	..	..	..	2.0	On 23rd - Yeola 5.6".
Ahmednagar	..	..	..	..	1.5	
Poona	..	..	..	..	1.1	
North Satara	..	..	..	..	1.2	
South Satara	..	..	..	..	1.0	
Mysore State						
Mandya	..	1.2	..	..	..	
Hassan	..	..	1.1	..	..	
Andhra Pradesh						
Nellore	..	1.4	3.0	..	..	On 20th - Rapur 5.9". On 21st - Atmapur 7.7", Rapur 7.4", Buchireddipalem 6.0", Sangam 9.0",
Cuddapah	..	..	1.2	..	..	

State and District	District averages on 19.11	20.11	21.11	22.11	23.11	Particularly heavy falls
Madras State						
Madras	..	1.2	..	..	..	
North Arcot	..	1.2	..	..	..	
South Arcot	..	2.8	..	..	1.5	On 19th - Tittagudi 8.1". On 20th - Chidambaram 5.3", Kattumannarkoil 5.8". Sirkali 7.1", Neidavasal 6.4", Maynram 8.6", Papanasam 5.3", Kumbakonam 5.2", Valangiman 9.6", Nannilam 8.2", Tiruyarur 7.0", Nagapattinam 8.5", Tiruttinaipoodi 7.3", Vedaranyam 5.8", Mannargudi 6.5", Tiruvaiyaru 5.1", Tanjore 5.5", Manialar Head 5.7", Manalmedu 5.0", Lower Anicut 7.1", Colegon 6.1", Paudavayar Head 5.9".
Tiruchchirappalli	..	2.4	..	..	2.6	On 20th - Jayakondam 5.2", Nandyar Head 6.8", Ponneri Head 5.1". On 23rd - Anaipalayam 5.5", Nandiyar Head 5.8",
Pudukkotiai	..	1.4	..	..	2.2	On 23rd - Viralimalai 5.7",
Madurai	..	..	..	..	2.0	
Ramanathapuram	..	..	..	..	1.3	
Tirunelveli	..	..	..	..	1.1	
Salem	..	1.7	..	..	..	

II. ACCOUNT OF WESTERN DISTURBANCES DURING 1956.

A good number of the western disturbances that moved across the country during the year confined their activity to the hilly tracts of north India. The activity was sub-normal from the second half of January to almost till the end of February, but increased considerably in March, with an early commencement of the dust-storm season in Rajasthan and the plains of the Punjab (I). Many of the thunderstorms of March were accompanied by strong winds and hail. The lack of rain towards the end of winter and the hailstorms in March caused considerable damages to the winter crops of northwest India and of west Uttar Pradesh.

A list of 58 western disturbances classified according to the nature of the precipitation caused by them is given below. One of them intensified into a deep depression over the Punjab (I) and a description of the same has been given under "I. Depressions and Cyclonic Storms".

Nature of Precipitation	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
Widespread	4	1	4	2	1	2	2	2	.	.	1	3
Local	3	2	2	1	.	.	3	2	2	1	.	2
Little or None	.	.	3	3	3	2	.	.	1	1	3	2
Total	7	3	9	6	4	4	5	4	3	2	4	7

III LOCAL STORMS 1956

Of the local storms reported in the newspapers, the following are noteworthy.

Place	Date and time	Classification of storm	Loss of human life	Remarks
1	2	3	4	5
Amritsar	28.2.56 ...	Hailstorm	..	Heavy rains with stormy winds and hailstones caused some damage to the gram crops.
Chandigarh	29.2.56 Night	Gale	..	A strong gale that hit the area caused the collapse of eight electric towers on the Panipat-Delhi transmission circuit.
Jammu	29.2.56 Night	Hailstorm	..	Hailstones of the size of walnuts struck Paimasti area damaging wheat crops.
Khatmandu	7.3.56 Evening	Hailstorm	..	A 50,000 strong procession of pilgrims proceeding towards Pashupati temple for Shivaratri prayers was caught in a hailstorm. A few of the hailstones were of the size of a cricket ball.
Kulati Lock Gate (24 Parganas)	9.3.56 Night	Severe Cyclone	..	A severe cyclone swept over the area causing damage to several houses in Jagjola colony and nearby villages.
Dibrugarh	11.3.56 Night	Cyclone	2	A cyclone which raged for an hour blew off roof-tops throwing them across roads. A number of people were left homeless. It caused severe damage to tea estates and killed at least two people and injured another 20.

1	2	3	3	4	5
Chandigarh	15.3.56	Morning	Gale	..	A gale blowing at 60 m.p.h. lashed the town from the morning, uprooting a large number of telegraph and telephone poles and dislocating communication. The town was in virtual blackout.
Gurudaspur (Chandigarh)	15.3.56	Evening	Gale	..	20 persons were injured by the gale in the town. 14 passengers of a bus bound for Dinanagar were injured, when the vehicle skidded off the road, rendered slippery by showers. Roofs of at least a dozen houses were blown off and several telegraph poles and trees were uprooted.
Hazaribagh	17.3.56	Evening	Thunderstorm	..	A thunderstorm blew off the roofs of one entire colony.
Banda	22.3.56	Afternoon	Hailstorm	Several	A severe hailstorm caused the death of several human beings and 600 heads of cattle, in addition to damaging rabi crops in an area of 50,000 acres.
Agra	22.3.56	Evening	Hailstorm	..	A hailstorm in Agra district destroyed the standing crops of few hundred farmers.
Gauhati	22.3.56		Hailstorm	..	A hailstorm accompanied by heavy rain and violent winds uprooted several trees and electric posts. Apart from many that received minor injuries, at least four persons were seriously injured by the falling trees and flying iron roofings.
Khuran (near Mukteswar)	15.4.56		Hailstorm	3	Hailstorm followed by severe hurricane claimed three lives and damaged crops worth lakhs of rupees in 50 villages.
Karimganj	20.4.56	Night	Severe cyclone	1	One person was killed and fifteen injured due to several house collapses following a severe cyclone which swept over the area. Roofs of many houses were blown away.

1	2	3	4	5
Haldibari	22.4.56	Noon	Hailstorm	1	A severe hailstorm which swept over Haldibari area caused considerable damage to several buildings. A cultivator while working in a jute field was lifted from the ground and thrown into a nearby tank where he met with death.
Silchar	22.4.56	..	Cyclone	..	A severe cyclone which swept over the town brought down a large number of houses and completely dislocated telegraphic and telephonic communication of the town. Many big trees were uprooted.
Srivilli-puttur Aruppukkotai (Ramanathpuram Dist)	26.4.56	Evening	Gale	..	The inspection carriage of a railway official capsized, when a strong gale swept the area. In Aruppukkotai roofs of some houses were blown off.
Chaibasa	10.5.56		Cyclonic storm	..	A cyclonic storm hit Chaibasa blowing away roofs and uprooting large number of trees and telephone and telegraph poles. A bull was smothered to death by a fallen tree. Several persons were injured. Rain accompanied by hailstones followed the storm.
Cooch Behar	19.5.56	Night	Storm	..	A severe storm at mid-night passed over the area uprooting hundreds of trees and blowing off a good number of houses all over the district.
Majdia (Nadia Dt. W. Bengal)	20.5.56	..	Thunderstorm	7	Seven persons were killed when the roof of a school building in which they were sheltering collapsed; 100 persons were injured.
Agra	24.5.56	..	Hailstorm	..	Widespread havoc was caused to standing crops by stones/hail some of which weighed about ¼ ounces.
Bhaikh (Gaya)	26.5.56		Storm	13	Softened by torrential rains the roof of a mine collapsed burying alive 13 women miners.
Allahabad	24.5.56	..	Hailstorm	..	Hailstorm accompanied by heavy showers hit Allahabad and caused extensive damage to mango and rabi crops.

1	2	3	4	5
Tembhurni (Madha, Sholapur Dist)	28.5.56 ..	Lightning	4	Four persons were killed at Tembhurni when they were struck by lightning. Thunderstorms and heavy rains uprooted trees, damaged houses and washed away bunds in many neighbouring villages.
Ratlam	28.5.56 Evening	Gale	1	A 50 miles an hour gale lashed Ratlam causing heavy damage to property and death of one person. Hundreds of trees were uprooted and thousands of birds were killed. Many houses collapsed and roofs of corrugated sheets were blown off.
Shivpuri (Indore)	30.5.56 ..	Thunderstorm	3	High winds with heavy rains blew electric poles, electrocuting an entire family of three. A buffalo and a calf belonging to the family were also killed. There was also considerable damage to property.
Nagpur	31.5.56 Evening	Squall	..	A heavy downpour accompanied by a terrific squall lashed the city for about 3/4 of an hour in the evening. The squall which moved from northnortheasterly direction had a speed of 72 m.p.h. One big tree was uprooted. Some roofs of Ajni Medical quarters were blown off.
Khamaria (Raipur)	4.6.56 ..	Lightning	4	Four men were killed and one injured seriously by lightning.
Thabalke (Jullundar)	14.6.56 ..	Lightning	2	Two persons were killed by lightning.
Jamshedpur	23.6.56 Evening	Squall	5	Five persons were killed as a result of a squall that passed over Jamshedpur. Telecommunications were disrupted and many industrial constructions were badly damaged.
Devikulam (Trivandrum)	30.6.56 ..	Typhoon	4	Four persons were killed and two were injured in the hilly Devikulam Taluka by a typhoon. Heavy rains damaged property and dislocated normal life. Roads were breached at a number of places. Erosion of lands in coastal areas has been reported. There was extensive damage to paddy, tapioca plantations and other crops. A number of huts and hundreds of coconut palms have been washed away.

1	2	3	4	5
Nainital	2.7.56 ..	Rain	17	17 persons were believed to have been killed and 6 others injured in a series of land slips in Almora district after the week end heavy rains.
Saugor	3.7.56 ..	Lightning	3	Three women were killed by lightning in a village 10 miles from Saugor.
Dhandhusar (Sorath - Saurashtra and Kutch)	3.7.56 ..	Lightning	5	5 persons and 5 buffaloes died due to lightning in the village of Dhandhusar of Sorath District.
Karchchana (Allahabad)	17.7.56 ..	Lightning	7	Seven persons were killed and two other injured seriously by lightning in two villages in Karchchana Tahsil of Allahabad district.
Suragarha Village (Monghyr Dist.)	20.9.56	Waterspout	..	A big column of whirling water-spout swept across Suragarha village in Monghyr district severely damaging the whole village within a few minutes. Roof tops of a large number of kutchaand tiled houses were blown off and many trees were uprooted. A woman who fell in the way of moving column was lifted up and thrown on the ground some distance away.

IV. WINDS OF FORCE NINE OR MORE IN THE INDIAN SEAS.

Excluding dates of storms and depressions, descriptions of which have been given above, winds of force 9 or more were recorded on ships in the seas during the year 1956 on the following occasions.

Date	Name of the ship	Approximate position	
		Lat. °N	Long. °E
7.6.56	S.S. Garoet	5.9	93.6
5.7.56	S.S. Toscandi	11.4	61.4
13.7.56	S.S. Orontes	10.6	61.6
2.8.56	S.S. State of Bombay	15.3	63.3

TRACKS OF STORMS AND DEPRESSIONS

(IN THE INDIAN SEAS)

1956

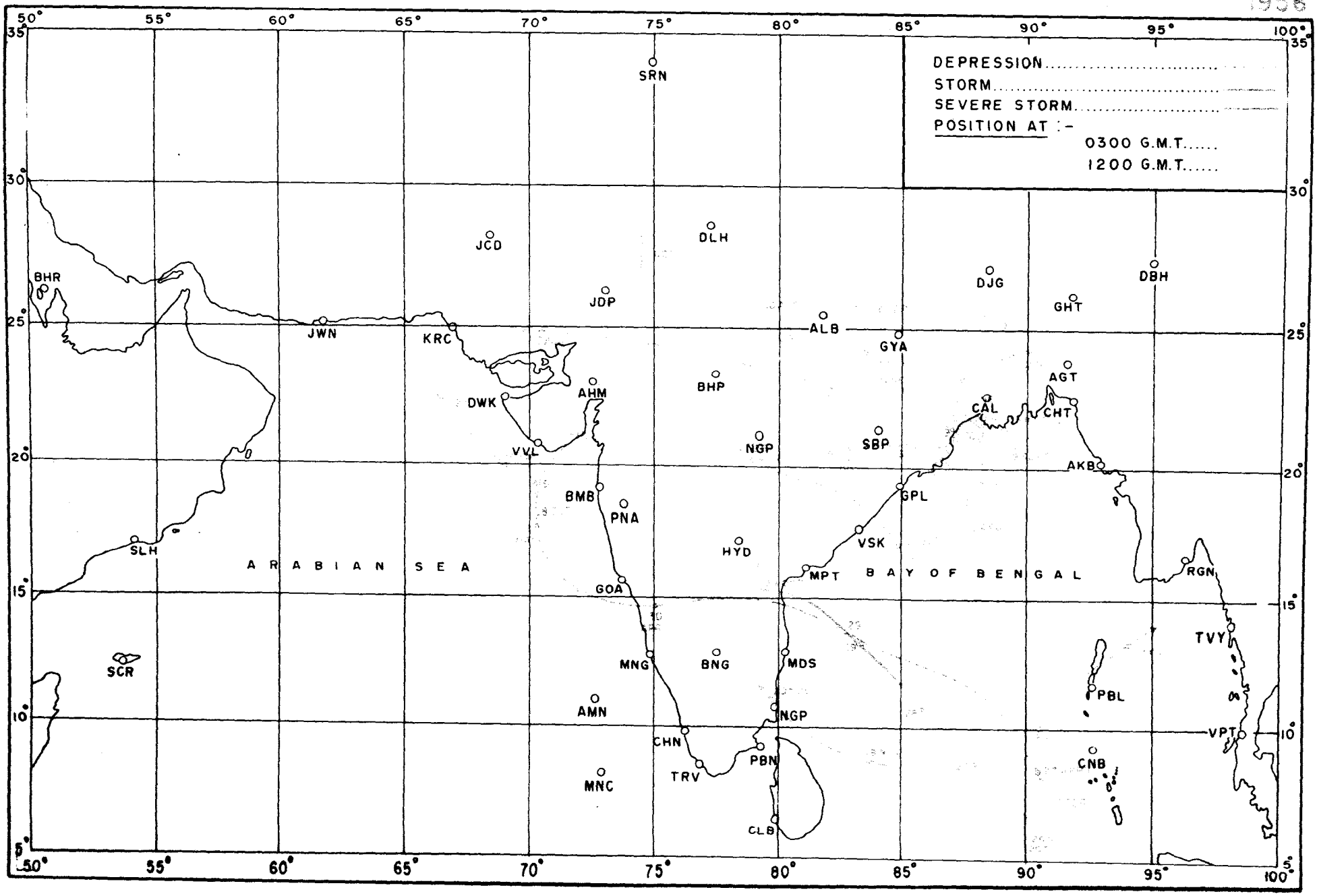

FIG. 1